DEVELOPING A PROPOSAL FOR A NON-TRADITIONAL PEDAGOGICAL APPROACH TO ARCHITECTURAL DESIGN EDUCATION

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HATIM AGUILA SALEH ESSA : DEVELOPING A PROPOSAL FOR A NON-TRADITIONAL PEDAGOGICAL APPROACH TO ARCHITECTURAL DESIGN EDUCATION

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I hereby declare that all the information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

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To who all of the contradictions have reconciled at her, whenever, worn down by the controversy appealed, ran away and lived her sense. To my soul and my biggest source of inspiration, to my mother**.**

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ABSTRACT

Architecture is a profession with the main task of designing and organizing living environments, and of increasing their quality, continuously. Design education is at the center of attention in researches on architectural education.

The theoreticians' interest on teaching pedagogies in architectural education-mainly on the design education as its core - emerged in early 20th. Century, and gained momentum in the last two decades. With the changes and challenges on the international scale brought by 'Globalization', developing the most convenient educational pedagogy in order to achieve the maximum efficiency through stimulating student's curiosities and analytical skills has become ultimate goal of researchers.

Multiplicity of studies prove significance of the subject worldwide due to effects of globalization, since, beside the skills and all the competencies, creativity and innovativeness has become the most vital requirement and a massive challenge for developing countries.

Many countries have a treasure of architectural footprints of many civilizations of the past, furnishing the students with the visual-physical environments which have direct impact on their design and methods of finding solutions to an architectural problem. Yet, it is an observed fact that in general, many students get less successful in the semesters following the first design courses which they have achieved high grades. This poses questions on the design education pedagogies implemented. Therefore, this study aims:

To build up a platform for a discussion about the architectural design education and relevant pedagogies.

To develop a proposal for a non-traditional pedagogical approach to architectural design education.

***Keywords*:** Architectural education; architectural design education; traditional and non-traditional pedagogies in architectural design education; creativity; innovation.

ÖZET

Mimarlık, ana görevi, yaşam çevrelerini tasarlamak ve organize etmek olan bir meslektir. Dolayısıyla, tasarım eğitimi, mimarlık eğitimi ile ilgili araştırmaların ilgi odağıdır. Kuramcıların, başta ana aktivitesi olan mimari tasarım olmak üzere, mimarlık eğitiminde uygulanan eğitim pedagojilerini değerlendirmeye yönelik ilgileri, yirminci yüzyılın başlarında ortaya çıkmış ve son yirmi yılda büyük ivme kazanmıştır. Küreselleşme' nin getirdiği uluslararası düzeyde değişimler nedeniyle araştırmacıların nihai hedefi, öğrencilerin bilgi edinmeye yönelik sorgulama dürtülerini, analitik yetenek ve hünerlerini canlandırma ve cesaretlendirme yoluyla en yüksek düzeyde verimliliğe ulaşmak amacına en uygun eğitim pedagojisini geliştirmektir. Çalışmaların çokluğu ve çeşitliliği, konunun hem ulusal hem de uluslararası düzeyde önemini kanıtlamaktadır. 'Küreselleşme'nin etkileri altında, mimarlık eğitiminden beklenen bilgi, hüner, uzmanlık ve yeterlilik yanısıra, yaratıcılık ve yenilikler geliştirebilme de mimarlardan istenen en yaşamsal gereklilik olmuştur. Öğrencinin kişiliği yanısıra fiziksel ve görsel çevreler de, onun mimari bir sorun için çözümler bulma yöntemleri ve tasarımı üzerinde doğrudan etkilidir Ancak, genel olarak gözlemlenen bir başka gerçek de, pek çok mimarlık öğrencisinin, tasarım eğitimini aldıkları ilk yarıyılda çok başarılı olsalar bile, onu izleyen dönemlerde heyecanlarının azalması, başarı düzeylerinin düşmesi, hatta eğitimi bırakma noktasına gelmeleridir. Bu, uygulanan mimari tasarım eğitimi hakkında sorular ortaya çıkarmakta, bilinçli ve derin bir tartışmayı gerektirmektedir. Bu çerçeve içerisinde, bu çalışma çoklu amaçlara sahiptir: İlk amaç mimari tasarım eğitimini ve ilişkili pedagojileri tartışmak için bir platform oluşturmaktır. Bu tez çalışmasının sınırları içerisindeki ikinci amaç, durum mimari tasarım eğitimi için geleneksel olmayan, yenilikçi bir pedagoji önermek ve bu önerinin mimarlık eğitimine ilişkin ders programlarında gerektirebileceği değişimlere işaret etmektir.

Anahtar sözcükler: Mimari eğitim; mimari tasarım eğitimi; mimari tasarım eğitiminde geleneksel ve geleneksel olmayan pedagojiler; yaratıcılık; yenilik.

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LIST OF ABBREVIATIONS

UIA: Union Internationale des architects.

HFG: Hochschule für Gestaltung UIM.

BC: Before Christ.

SCAD: Spatial Cognition for Architectural Design.

OECD: Organization for Economic Co-operation and Development.

NACCCE: National Advisory Committee for Creative and Cultural Education.

CIAM: Congrès International d' Architecture Modern.

UN: United Nation.

MOMA: Museum of Modern Art.

RSA: Regional Science Association

USC: University of southern California

CHAPTER 1

INTRODUCTION

Architecture is a profession the main task of which is to design and organize living environments with the goal of increasing and sustaining their quality, continuously. It is, at the same time, an occupation that employs learning depending on a project as a pedagogical center in its educational method. The modern architectural curriculum continues to place project-based learning, as represented by the design project, at its core. (Webster, 2004), Therefore, design education has become the center of attention in current discourses of architectural education research.

In the architectural education, design studio in its place or its pedagogical form is a center of architectural education, which offers the perfect place to merging knowledge, a space where thinking, synthesis, applying and working at the same time, also, joining the theories with practice. That could be the ideal of design studio, (Crosbie,2007,p.106). However, many architectural educators and theoreticians, admitting that there are shortcomings in the design studio began to question and criticize the design studio and its educational pedagogy, and that took place within the end of the 20th Century.

In a world that is changing extremely fast every sector is apt to be rapidly transformed, including education. Therefore, there seems to take place ‘ Knowledge-based’ to a ‘ Learners-and-competences-based’which based on learners and competencies, which equates the roles of competences and skills with the knowledge- the ‘Learning outomes’ in the field

Architecture and its education encapsulating the design education at its core is no exception. The sudden adjustments of the abilities, possibilities and situations that impact directly on our economic, cultural and social environment, also on built environment as well, are influencing each day on the mind horizon and the operational framework. Within this non traditional and liquid environment of the global economy and the information

community, Architecture as a life aspect and cultural notification in the space looks out to its new requirements.(Voyatzaki andSpiridonidis,2011). In line with this, the criticisms - at times sharp- are going on, alternative pedagogical approaches are innovated while some are already implemented; but the debate for new approaches which have the ability to respond the requirements of the ‘ New Era’ still, strongly, goes on.

The need for awareness, creative and innovative designers has become more important than ever before. To deal with the contemporary architectural problems it is not satisfactory to know how to teach students knowledge and skills only to become designers/architects, but also to be more creative and innovative in their designing and to be aware of all possible cross-cultural solutions. awareness of all possible solutions cross-cultural. Creative design process tends to be suffocated by the traditional rigid framework of teacher-oriented pedagogy of the academic design programs of the university, providing teaching only inside the studio with the support of some theoretical knowledge. Stifling the design process leads to close many possibilities of better solutions in needy world, which we should not do.(Lyle,1985,127).

1.1. Thesis Problem

Within the above mentioned framework , the subject that will be dealt with in this thesis is related to architectural design education and implemented pedagogies**:**

It has been observed that the majority of the architecture students starting from the second year until the final year, fail or achieve lower results in architectural design courses despite the good grades they have gotin the previous- basic- design courses in their first year. The reasons from the researcher's point of view are:

1. Using traditional methods of teaching, (Lectures + Studio) at the universities. These traditional methods of education involve two methods, which are, 'directing student and directing instructor' , telling lectures, discussions, questions, showing models also solving problems, are used in these two methods, depending on theoretical knowledge and teaching methods that apply only inside studio, such as learning designing by practices or , telling lectures, as in traditional teaching methods, (Lectures + Studio). Theoretically, the studio is the process of learning by exercise, where students are given a series of design problems to be solved. Thus, they will learn how to design to a large extent by that exercise, and not through the study or analysis, such as studying or analysing the situations or the environment of those cases with series of design problems, (Lawson, 1997).

2. Students practice the same educational activities every semester working on the same pedagogical examples, such as formal sketches of houses, hospitals and schools.etc, which are offered during their educational stages as well as dealing with and focusing only on local architectural environment which limits creativity of the students.

3. Experience and seeing in architectural education is essential to form the design process during which students are learning to complete the logical knowledge with a creative vision. However, in most of the architectural departments and their students are not aware of this significant fact and/or students are hesitant to make the leap of faith towards getting to know different patterns and cultures of architecture to solve their architectural problems. Therefore, time and other necessary resources are not allocated for the ‘Experiential Learning’ taking place through visiting, seeing, touching, smelling,

feeling the architectural spaces created by other cultures, a problem which actually falls contrary to the high level of mobilization in the globalized world. Lack of opportunities for students to examine and use diverse built environments as exemplars which would enhance their awareness about their design and architectural education, where they can develop knowledge through critical thinking, understand the forces behind their designs and construction, get inspired and use this knowledge in their future design works.

Therefore, the main problem which this thesis will deal with is as mentioned above, which is , It has been observed that the majority of the architecture students starting from the second year until the final year, fail or achieve lower results in architectural design courses despite the good grades they have gotin the previous- basic- design courses in their first year.

From researcher point of view, and depending on what descussed above in introduction part, it can be seen the need for new approach in architectural design education to deal/processing such a problem, like this study's problem.

1.2. The Aim of the Thesis

The aims of this thesis are about ‘the importance of the development of the subconscious mind of the students through experiencing existing built-in environments, spatial setting, and developments. Moving from ready made, opjective, descriptive knowledge to subjective, gained and experienced knowledge.

The ultimate goal of this thesis is to contribute to the development of the subconscious mind of the architectural students through experiencing existing built-in environments, spatial setting, and developments which are foreign and new to them, thus moving from ready made, opjective, descriptive knowledge to subjective, gained and experienced knowledge.

With this goal in mind, the thesis has, mainly, two aims**:**

The first aim of the thesis to build up a platform for a discussion about and evaluation of the traditional and current architectural design education and relevant pedagogies.
Second aim is to propose a non-traditional pedagogy which takes into account the uses of experiencing the architectural environments of foreign cultures in/during architectural design education, As mentioned above in : 1.1. Thesis Problem, P,3.

Within the confines of this thesis, it is intended to achieve these aims through the efforts for:

1. Reaching a better understanding of the architectural design process and relevant pedagogies, with special reference to the question of foreign country experiences and find the key solutions for architectural design problems outside the local architectural environment by visiting new cities/countries.

2. Creating awareness in the virtue and value of getting to know the foreign cultures and the architectural-designerly ways they express their cultures as alternative knowledge resources, and directing students to them, through suitable pedagogical approaches to help them create a wider scope of ideas and when they try to find a solution to their problem of architectural design.

3. Moving on to a deeper understanding of contribution visiting and experiencing different and foreign to creativeness in design process, to a greater awareness which would help find innovative approaches outside the local architectural environment in solving architectural design problems, by visiting new cities/countries.

1.3. The Importance of the Thesis

Traditionally, the system of architectural design education established on values, expectations, logic, testing and assured. However, most of the architectural improvment is founded on a critical inquiry of several sides of pre-existent and founded official expressions and their implicit values and rules, and established formal expressions and of their underlying values and principles.

This critical inquiry of the established is the creative power of architecture, design work energy and the power of architects' decisions , since it prompts one to analyze, synthesize, evaluate ideas and apply.

World is changing faster than ever before, as mentioned earlier and the architecture is experiencing important changes in its rules, values and primacies, and needs to construct the new for present and future. Apart from the critical thinking which evokes creativity, innovation also appears as a quality of architectural creations which is the same of transferring the architectural practice process to different and new expressions and inventive tracks. It is conceived as a window introducing new ideas about experiencing space and assuring different and fresh forms of architecture in order to keeping up the new social requirements.

On the other hand, the universal use of contemporary fascinating forms constructed with highly advanced design techniques and technologies at play puts the architectural education at the risk of becoming the one with lack of social and cultural vision. The necessary counterbalance is understanding of cultural heritages and local contexts in foreign architectural domains. Experiencing and learning from the architectural environments of foreign cultures through 'Travel' during and combined with the period of education is a matter of utmost significance for the students of architecture.

This study, in line with its aims, and in its search for a proposal on a non-traditional design education pedagogy including travelling covers the discussions on and evaluations of the various views brought forward by the studies on/and relevant to the subject, with special emphasis on the concern of helping students of architecture develop their critical thinking and innovative capacities, the qualifications which architectural design education should evoke in this era , as mentioned in chapter, 1: Introduction part.

Amongst those studies , together with ‘ Learner-centered ‘ teaching paradigm, which emphasises on giving students more space to learn by themselves and sharing learning process with their teacher and using their personal skills in that process by experiences, thinking and critic, etc. (Weimer, 2002), the ‘Experiential-learning’ pedagogy seems applicable due to its significant education that use physical or instant experiences, which give a foundation for noticing and reflexion. (Kolb,1984). Where, noticing is viewing and careful observation of a particular behavior or phenomenon under certain environmental conditions and factors in order to obtain accurate information to diagnose this behavior or phenomenon, with a view to their interpretation and discovery of their causes and access to the laws governing them, in order to learn and gain knowledge and experiences. Where, hearing and sight are the main pillars of observation. While, reflexion describe as processes used to examine problems, gain information, analyse knowledge and propose solutions in design and planning. In other words, it refers to the cognitive activities of the design, applied by the designers during the design process. Also reflexion is a human-centered approach to innovation that derives from the designer's tools to merge the people's needs, technology's possibilities , and business success requirements.

Noticing and reflexion processes are playing important role in process of gaining knowledge by critical, analytical and innovative thinking. When, critical thinking, purposeful, self-regulatory judgment that leads to the interpretation, analysis, evaluation, and conclusion, also, evidential's explanation, conceptual, methodological, criteriological, or conceptual considerations, which the judgment based on, (Facione,1990, p. 3), Innovative thinking is a gained skill from scientists and researchers point of view, when, artists and architects see it as a gift that individuals born with, which is hard to obtain. Others say it could be taught with utilize simple techniques. In education's field everything

is possible depending on the process of bringing out the gift in those who have it and giving it to those who don't. This process of bringing out or giving creativity is subtle and sensitive for some while being hard for others. (Goldschmidt and Weil,1998), proposed that the design is founded on gaining skills, practice and experience. It is understood as an outcome of thinking processes. Designer is thinking about full range of design criteria and requirements, like, aesthetic and official attributes of the proposal (Cross, 1990).(Schön,1983), debates that the knowledge of architecture in fact is derives from various fields of scientific and aesthetic thinking remains open to a great degree.(Oxman,1990), supposed that the thinking processes that happen in recall and restructuring of knowledge are through design's foundations, they also might provide a base for creativity/innovation's explanation.

Therefore, through all of these processes that mentioned above, which will happen with architecture students during traveling and experience different built environments, students will enhance their personal skills and creativity, as well as their innovation in design.

On the other hand,(Peter Zumthor,2006), wrote about relating the ' Atmospheres' to ' how we perceive or experience spaces.' He asserts: We realize weather/atmosphere within our sentimental sensitivity- a shape of understanding, which works unbelievably fast, emphasizing that encounters with buildings are very much bodily.

In general these three approaches have some common points which are:

- Students are more active in learn process, through gathering knowledge, inquiry, critical thinking, etc.
- The instructor's role is to coach and facilitate, where students and instructor will learn together in cooperative, collaborative, and supportive atmospheres, not as sender and receivers.
- Improving the individuals' skills by experiential learning through experiencing built environments.

As will be dealt with in detail later in the chapter these three approaches, though sometimes implicitly, point out to the significance of travelling in the architectural education: Travel provides possibility to perceive + to experience+ to understand+ to learn from these experiences , leading to the production of design knowledge.

Therefore, this study is important since it:

1. Considers architectural environments as physical capital to teach design and common cultural standard concepts as social capital.

2. Introduces and brings together three different but very strong approaches together, namely, Kolb's theory of 'Experiential Learning' and Weimer's ' Learner-centered ' teaching paradigm (Weimer, 2002), under the light of Zumthor's 'Atmospheres' as mentioned above, in its efforts for developing a proposal for a non-traditional pedagogy for architectural design education.

3. It emphasizes the significant role of discovering, experiencing, critically-delete the foreign architectural environments and cultural factors shaping them in increasing students' motivations, creative and innovative capabilities in design education which take an architecture school as a corporation educating them to architecture and not training architects.

1.4. Limitations of the Study

This study is conducted within the scope of pedagogy in architectural education to develop a non-traditional approach. Through out, the study attempts integrating the tools/the ways of/paths for learning and by doing so, to reinforce role of the Studio as the core of architectural education where the students share the knowledge they have learned and produced through travelling- experiencing and utilize them in their new designs, being more aware of other cultures and their spatial products due to their interaction with them;therefore, opening doors to fulfill the requirements of the new era as to what is expected from the architecture graduates as mentioned in Section 1.3. Importance of the thesis.

Factors exerting limitations on the study are as follows:

1. Scarcity and/or lack of sources on the subject of the study since it attempts to combine theories developed in different fields and relate them to architectural education which is unique in character.

2. The difficulty of reaching/obtaining data that are specifically related to the subject,when the difficulty of translation is taken into account from sources in languages other than English and Arabic.

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1.5. Overview of the Thesis

1.5.1. Methodology

This research deals with the current pedagogies applied in architectural design education and the possibility of proposing a non-traditional one with special emphasis on ‘combining architectural design learning with traveling abroad which helps the students investigate, get to know, see and examine different cultures and built architectural environments’. as well as the impact of travelling on architecture students at universities.

With the aim of this study stated above, in 1, 2, p, 4 methodology of this thesis work is based on:

1. Observations.

2. Personal experiences.

3. Literature review.

Observations and personal experiences helped to recognize the problem area and weaknesses of the traditional pedagogies implemented in architectural education in order for achieving the architectural capabilities required by the globalization.

During literature review, it was seen that these capabilities were regarded, mostly, within the framework of the ‘computerization of the profession’ beginning from mere ‘Representation-directed’approaches heading to ‘Fully Computerized design activities’ which works in favour of contemporary fascinating forms, speaking of big capitals and technologies of very advanced level, and which indirgemek education of architecture to this end, increasing the doubts up whether architecture is loosing its socio-cultural assets.

However, with the consiousness of the architects’ qualities required in global era the literature was further filtered according to the criteria of proposing a pedagogy for architectural education which would meet the objectives of and criteria for architectural education determined by the UIA (UIA, II/, III/4, 2005) (given in the attachment), and which would work for fulfilling the request: “Different levels of innovation should be carried out in order to improve the level of architectural creativity.

”(Professor Wu Liangyong: Speech Presented at the XX Congress of the UIA, Beijing, 23-26 June 1999), (UIA, Beijing conference,1999, Architecture of the 21st Century, 27 - 29 June 1999).

The literature review done with the above mentioned criteria in mind showed that ‘ Travelling’ to foreign countries with different social, cultural, and consequently, architectural backgrounds, when combined with the curriculum is a firm means of producing architectural knowledge, for many reasons that will be elucidated in the following chapters.

Points discussed in this study are **:**

1. How can travelling abroad can become a learning experience complementary to learning of architecture students at the university?

2. What are the impacts of a travelling abroad on personal and professional development of architecture students ?

3. How experiential learning and experience different architectural cultures will affect on architecture students' design education.

4. Impact of studying abroad on students knowledge.

1.5.2. Structure of study

This thesis is made up of chapters, where, The first chapter, “Introduction” discusses introductory points as a proposal or an acronym of research content, such as: problem statement, aim and importance of study, methodology and the organizational structure of the study. It introduces, also, the hypothesis structured as ‘ a non-traditional pedagogical approach architectural design education’ and foresees that such an approach will help solve the problems stated as 1.1. Thesis Problem, P, 3. First paragraph. The second chapter is about “Architectural design education-methods and pedagogies”, since the architecture is multidisciplinary scope that includes many main components, such as, social and physical sciences, humanities, creative arts, also technology, therefore, should be regard the architectural education as the semblance of capacity to conceptualize, coordinate and implement the idea of building rooted in human tradition, where this chapter presents the relevant literature review and several topics on design activities such as , design thinking and design types. The third chapter is under the title of “Architectural education pedagogy, creativity and innovation”, which has strong relation to the subject of this thesis, along with subjects, such as creativity, innovation, experiental learning, travel and studying abroad, etc. The fourth chapter presents the ‘Conclusion’ which includes briefly critics of traditional architectural education, (studio + lectures), then re-explan the study's problem aftre that moving on to this study's assume and how design education is affected through seeing/viewing other different architectural cultures, environments, as mentioned in 4.2. Conclusion, paragraph, 11. Following in the ‘Conclusion’ Chapter, is to explain all what has been mentioned above.The Chapter is finalized with the researcher’s views about how this study's hypothesis will be useful to the architecture students and architecture as a whole,with the ultimate goal of helping improve the quality of architectural education and of the architectural practice, including how the researcher assumes to apply it in reality.

CHAPTER 2

ARCHITECTURAL DESIGN EDUCATION-METHODS AND PEDAGOGIES

In the form that we know today, design education is rooted in late nineteenth century. The design education's history appears a progress from the place of work to university's studio(Lawson, 2004). Therefore, This chapter presents an overview of the architecture schools and their architectural education since Ecole des Beaux Arts until to the present.

Other topics which are dealt with in this chapter, are, design and cognition in design education. This part starts with a short review of cognition in design education to know about cognition and the process of rational actions of getting knowledge and collecting, analysing iformation/data, which prepare/lead us to the next chapter, that is ,learning based on/ by experience. Then move on to design thinking, 2.3.4, P, 38, design thinking process, 2.3.5, P, 39, and design types 2.3.6, P, 41, to know them briefly.

2.1. Literature Review

2.1.1. Education in general

The education as term has specified by many scientists/philosophers, therefore, there is no specified definition for education, because education as concept has been discussed differently and most of the time paradoxical interpretations. (Ducasse, 1958), observes that, it came from the Latin term “educere” which means to ‘lead out’, or ‘bring out’. However, other thought’s school says, it is not “educare”, which, means to ‘form’ or ‘train’ (Schofield, 1972). Therefore, within the industrialism’s introducing , and the raise request for knowing and skills the ‘education’ has become highly connected with ‘schooling’, also with kind of practicing and instruction which went on in particular directives. The Unesco International Standard Classification of Education,(1995), determines education as systematic and sustained connecting created to achieve learning/knowledge.

(Balogun, 2008) mentions the education to each/any action and/or experiment that has formed impact on the individual's character, mind and capacity. Furthermore he clarified that the education is process of life-long in which we keepon to learn through experience during our live.

2.1.2. Design in general

Design is a concept that focuses on the elements/components of system/structure and integrates them a coherent and functional whole , according to a special approach in order to achieving the aim(s) under the given limitations and/or constraints, (Business dictionary, 2017). Also, the design refers to all logical, technical and scientific processes, which are able to identify shapes and structures, as well as processes that can create spaces for humans to perform the activities they need. Many think design is work of art, and a creative work since many of the buildings that were designed years ago to this day are still works of art, whether heritage or archaeological or modern, presenting the most important features of countries, which are visited by visitors only to see the magnificence of their design.

2.1.2.A. Design as process

The design's process isa path for breaking down a great project to manageable pieces. Architects, engineers, scholars, and other debaters utilize the process of design to fix many kinds of problems,through using it to specify the steps that are needed to process any project, and recall to hold all of your notion and sketches throughout the process, architectural design process is a broad guideline to managing a successful design project. Also, often the design process belongs first to the creative imagination, where feelings, needs and technology mingle together in graphical and descriptive patterns.

Design process might include some steps that designers followed, depend on the product. These stages could be non-related ignored in situations of real-world to save the time, decreasing the cost or because, they might be too much in the case. Design process includes typical stages as follows: Pre-design, (Pre-production design), Brief design –

design aim's statement, Analysis, Research, Specification, Problem solving, Presentation, (presenting solutions of design), Development, Testing, Feedback, Implementation, also, Evaluation and conclusion.

2.1.2.B. Design as product

It could be thought in design as product through physical and functional terms,(Ulrich and Eppinger, 1995). The product's workable elements are the processes of individual and conversions which participate to the whole product's performance. The product's materialistic elements are the parts, components, and subassemblies, which eventually implement the functions of product. The product physical elements are organized in some main physical building's masses . Each mass is a group of components that implement several functions of the product. A mass might be interchangeable components set, that implement the same functions, in this case, the mass is named a module. Also the product's architecture is the sketch based on which the product's functional elements are organized into physical masses and the masses interact.

2.1.3. Design education

It is teaching of theory and application in products' design, environments and services, such as, architecture, interior design, interface design, graphic design, sustainable design and universal design, etc. There are differences in the values and attitudes that underlie various design schools. design is around solving-problem, (Eastman,2001), says that design was at first deliberated as problem solving's type (Newell, 1969), “As a search's space for possible solutions for the better or a‘satisficing’ solution, in approach like to chess's studies, crypto-arithmetic, and puzzle's solving”. Design also, could be problem formulation, structuring the search for the problem formulation and avoid giving specific solution. Therefore, there is some debate about this, some say it is about ‘solving problems’, whereas some others consider it as problem formulating.

Design education is about learning how to apply practical methods, previous knowledge, also, personal skills to solve new problems. Also, it is described as creative education.

2.1.4. Architecture

Most of architectural critics and architects have tried to define the architecture. Even architecture students faced this situation in their theory classes at school. Also, many famous architects described architecture, a list with some of these definitions was prepared by, (Francis Ching,1996). Ruskin described it as an art to learn by anyone, because everyone is concerned with architecture, (John Ruskin, 1858), (A Visual Dictionary of Architecture, 2011)

Le Corbusier In 1923 defined it with following pharse: Architecture is masterful, right and wonderful play of masses gathered in light, (Le Corbusier, 1923). (A Visual Dictionary of Architecture, 2011). You have to follow the nature's rules and using amounts of brick, construction's methods, also, engineering. However, at the end, while building becomes a part of the living, it recalls the immeasurable qualities, and its existence's spirit takes over,(Louis Kahn, 1979, 48), (Architecture and Mathematics from Antiquity to the Future. 2015)

Clearly, different paths for defining architecture are there, also most of them involve both concrete apparition and space's rational perception. But, the most common approach has been by joining it with the sciences or art. Architecture is known science and art of structure, or as a section of fine arts, that means architecture is concerned with aesthetic arts, opposed to engineering which is concerned with industrial arts. Both of John Ruskinl and William Morris, who are renown critical theorists of the 20th, century, have contributed in this discussion, where, generally they see that the uniqueness between architecture and building can be summarized as: Building + Art = Architecture.

And the Architect, is a person who is trained and experienced in buildings' design, And the Architect,is a person who is trained and experienced in buildings' design, and construction's supervisor of the buildings. Also, architect has described as licensed individual, in which reserved through law, and qualified professionally to work and offer services of architecture. also, As generalist, architect able to solve possible contradictions among various requirements, also, given form to the society and environmental needs of individual.

2.1.5. Architectural education

Architectural Education interested in improving students to be well expert and imaginary designers of buildings and areas betweenb those buildings, (Roberts, 2005).Education of architecture is the integration of lectures and the studio work. Where courses are organising in terms of their particular content and methods of teaching, therefore, organising whole the programme of study into the different years of study. Usually, architectural education includes in its content design studio and courses of history and theory courses, also, professional practice-related courses and construction-related courses and humanities courses. The design studio everywhere, is known as the core of architectural education, therefore, the relationship between design studio and other courses' components has not much differences. Education of architecture in general and design studio in specific in hold great possibility as sample for completed learning, which is process, a path of thought that integrating numerous elements, potentials and constraints of architectural knowing. Design studio supplies the copulative tissue that progressively gathering numerous elements of architectural education" (Siddiqi, 2002).

2.1.6. Architectural design

Architectural design is a logical, technical and scientific process capable of identifying forms, organization and processes that create spaces dedicated to man to carry out specific activities, such as, living, working, relaxing and healing etc. The objectives of this work have changed over time. Architectural design is an organized mental process in which we can deal with multiple types of information and integrate them in one set of ideas and finish with a clear vision of those ideas. This vision usually appears in the form of drawings or a timetable, and design includes the method and the product at the same time. This confirms that over time, there has been a significant development because of the increasing requirements that should be met, and also because of the increased request for product,(buildıng), quality. In other words, it developed from the task of creating shelter to shelter from weather fluctuations, (that means, it has the same aim or function within its development, which is shelter from weather fluctuations), to what it is today's construction.

In addition to this brief definition, it must be added that often the design process belongs first to the creative imagination, where feelings, needs and technology mingle together in graphical and descriptive patterns.

2.1.7. Architectural design education

In architecture design education and its allied branches is the design professions' cornerstone that make major contributions to form built environment of today and future. (Salama, A., 2015). Design is the foundation of the architecture degree, with activities that focused on studio, where students improve inclusive set of skills and explore processes of architectural design. The students will study the main architectural design’s concepts and the paths that make buildings meet dwellers and society's needs. Also, they will learn how to applying drawing techniques to the investigation and communication of architectural design, beside using computer to design, modeling and construction/structure. Teaching taken place in modern studio, sections of information technology and wide workshops, which equipped with set of professional resources, involving quick prototyping and equipments of cutting by laser .

The architectural education is different than other branches of education, involves both theoretical courses that include methods like information's transfer and evaluation, and, studio and activities particular to design education. In the architectural education theoretical lectures are narrated in, teacher oriented, style, education of design studio is managed both of, teacher- oriented and student-oriented, styles in terms of method. Where, in teacher-oriented, instructor is the leader and rules maker, also,control taker.

The punctuality comes from the instructor, as well as, all responsibility is on the instructor. While, in the student-oriented students are sharing the leadership, rules are developing by students and instructor, control and punctuality come from students themselves, also, responsibility is shared between students and instructor. The main feature of design education is the student's suggested design is criticized by the supervisor. Therefore, the given problem has no correct unique solution. through this process, the students' original ideas are developed, also, the results are transformed into visible products, like, sketches drawings,and models, etc. Nowadays, generally,educational environment is divided into two, as, formal education and distant education, where, the environment of the architectural design education is in the form of formal education, like, classroom and, face-to-face. Architectural design education's equipments are diverse between traditional and digital, (computer), equipments.

2.1.8. Pedagogy in architecture (design) education

In architectural education it is rather diffIcult to make a formal separation as architectural education and architectural design education, since architectural design is the core and backbone of architectural education and the whole curriculum is shaped according to pedagogy implemented in design courses. Therefore, it s easy to note that the design has discussed or mentioned in most of the literature review's titles when researcher was trying to explan them. Where, architectural education, is that the implemented programs of the architecture school, such as, lectures, design studio, summer practices and workshops, etc;. Pedagogy is known as various kinds and variations of teaching. In this path, there are numerous various ways in which teachers teach and students learn. some of these ways include learning by discovery, set learning hands on learning, distance learning, and independent study.

Pedagogy as idea, it includes what instructors do in the class, however, also their notions, knowing and attitudes in relation to the students/learners, the teaching and learning process and the curriculum.

“The pedagogy is teaching's art and science. Generally, the term refers to instruction strategies, or instruction way. Also, it referred to pedagogy as the correct utilize of useful strategies. Efficient learning outcomes from quality pedagogy, and this is the comprehensive and constant gain of knowledge skills, and values, where the instructor or institution seted it to impart.” (Felder and Brent, 1999).

Since pedagogy is type of teaching and design is the core of architectural education, they have unique relationship. Design crosses through most of the semesters/years' study at university during quick approach projects that are given to the students. Which means, each student is taken project to deal with, within a determined time, as apedagogy of teahing.

The development of education as a whole and the schools' pedagogy have been influenced in different ways over time, through developing educational aims, rules, styles and systems. But, reflections of various pedagogical notions have always been conditioned by historical, cultural, economical and other general social situations, which greatly influenced the degree of their implementation and moreover development of the organizational forms of the schools. However, the general form of architectural education pedagogy is same in most of architecture schools, such as pedagogy of classroom and design studio, which Characterized by interacting students with their instructor and with eachother, within the offered subject, by the instructor, (Lectures about history and theory, etc. Also, offering problems in design studio to be solved and practice). Pedagogy in architecture is both theory and practice of education (theoretical lectures and practice in design studio). It is a strategy where the study and practice of how best teaching and learning process happens with all the available resources and technology to meet the future needs. It is to teach and to learn through facilitation. The pedagogy process should involves preparation, presentation, association, generalization and application.

2.2. History of Architectural Education and its Pedagogy

2.2.1. The “Ecole des Beaux Arts”

The subject's evaluating, (Pedagogy), the formal architectural education history, is considered to begin in France,1819, with Ecole des Beaux Arts. where it was based on a master’s teaching in a workshop conducted by him, called also ‘atelIer’ in french, an approach closely following the medieval apprenticeship system. After having been admitted to the atelier of one master, future designers used to work inthis workshop for a long time, following the master’s design approach and methods, and learning knowledge and skills he presents master qualified to work on their own.

2.2.2. The British pupillage.

Pupillage means, a student or being student. also it is the educating process or being educated, through instruction program of a particular type or level. Also it could be described as a person who taught and influenced through or under special or famous person in specific field.

According to Gradidge, (1990), pupillage was based on practice. In this educational system the pupil/student/learner in fact paid to train/work with a master - and sometimes attended lectures on the relative subjects. It began in 18th century, was common from early 19. Century on until early 20th century. The variations between apprenticeship and pupilage are characterized by Crimson and Lubbock, 1994, (Air. Saeid M. Mahmoodi, 2001, The design process in architecture,). As student had to pay for the directives, while the beginner was in the medieval craftsman way, exchanged his work for directive.

The establishment of the architecture school of Liverpool was in the 1895. The Britain's first recognized architecture school of Liverpool was under the French Beaux-Arts' impact, (Stirling, 1978). Where, the architectural education and pedagogy were based on arts and crafts movement, that based on master’s teaching in a workshop conducted by him . However, later start to promote Classical and Modernist ideas. After that the program of courses and design studio has implemented within years/semesters program of study, Each year contains core modules in History of Architecture and Planning; Building Technology and Structures; and Environmental Science and Design. In addition modules in Design Computing and Sustainable Environment. Students are combining these modules with design studio. In each year, design studio is taking up about 50% of the module load. Also, opportunity of practicing for one year in international architecture offices, etc.

2.2.3. The Bauhaus at German in Weimar.

In the 20th century, the Bauhaus has been the most effective school of art, one whose approach to teaching, and understanding the relationship of the art to society and technology, (Cunningham,1980), characterized the Bauhaus's educational climate as anti-academic approach, non-trustful of theory, founded on workable experiments and firstly, aware of social's need. The curriculum of the Bauhaus was determined in two essential parts:

1. Workable instructions in dealing with various materials and equipment.

2. Official instruction under following topics:

Studying of nature and materials, performance, plane geometry study, construction, paintering, construction, painting, making model, design, volumes study, component and colours. Also, various branches of sciences and art were provided through lecture courses. The whole course was implemented within three stages: instruction for six months, technical instruction for three years, which lead to the certificate of pupil's, Journeyman and Structural instruction, relay between theoretical training in Bauhaus's research department and manual work in real sites of buildings, which lead to diploma in Master-Builder, (Gropius, 1983), (Air. Saeid M. Mahmoodi, 2001, The design process in architecture,).

As result of appearing of the theory formulization's opinion, that aimed to connect human's behaviour and viewpoint through material, design, and industrial technology with visible compounds in uncommon way, gropuis has founded basic design education in design education. This teaching approach,the foundation/basic course in design might be the most creative and effective component of the tradition of Bauhaus, which IS still taken into account in pedagogic systems. Where, the pedagogy focuses on the general and multidisciplinary context of design beyond the approach of the Bauhaus, which combining craft, art and technology. Subjects like, politics, economics, psychology, sociology and systems of thinking have integrated with aesthetics and technology.

Through HFG processes, 1953-1968, gradual approaches were implemented to the process of design within the product design departments, Information, Industrialized Building, Visual Communication and Filmmaking.

“Since basic design is very far from memorizing, thus, it will enrich and activate students' opinions. Students/learners are attempted to be provided to have skills on building coordinating among eye, brain, and hand during the process of constructing-animating the image/vision in brain and transfer this image/vision to the design region by visible way through the applications towards improvement of visible perception, visible language, and visible expression. This approach underlies by the effort on the improvement of visual thinking ability of students. Other aim of this effort is to help brain, comprehension and capability of intuit/understand student, opening novel horizons, etc;. (Asu Besgen et al. / Procedia - Social and Behavioral Sciences 182 (2015) 428 – 432). It could be considered the most significant Bauhaus's contribution to modern education of design. It aimed to raise designer and craftsman who have a capability to create beautiful and helpful object that is convenient/suitable to novel life system by improving a program founded on hand crafts. The Bauhaus integrated both the design education and fine arts' elements. In the Bauhaus school, a program was formed, where the student was capable to participate to building design and different internal hardware by gathering visible arts and technique. ”(Asu Besgen et al. / Procedia - Social and Behavioral Sciences 182 (2015) 428 – 432)The dominant direction in the Bauhaus's path of teaching was focusing on the experimentation of abstract forms.

2.2.4. Ulm School of Design

in 1933 Bauhaus has dissolved due to pressure of the Nazi and the second world war, but in 1946, the Bauhaus mantle of industrial design returned to its shattered homeland, Germany, in the city of Ulm, as ‘Volkshochschule Ulm’. It was renamed as ‘Hochschule für Gestaltung’ (HfG - 'School of Design') in 1953. In 1953 it was renamed as ‘Hochschule für Gestaltung’ (HFG - 'School of Design'). It was a particular industrial design school and visible connections in Ulm, until 1968 where closed. The school was the first new postwar university-level institution in Germany.

It was heralded as the successor of the Bauhaus but with a new educational mission and an exceptional architecture that gave expression to these ideas. The school offered a four year course of study (Krippendorff, K. (2008). Designing in Ulm and off Ulm. In K.-A. Czemper (Ed.), HfG, Ulm; Die Abteilung Produktgestaltung; 39 Rückblicke (pp. 55-72). Dortmund, Germany: Verlag Dorothea Rohn. The school started as the experience of Bauhaus continuation under one of its previous students who is Max Bill and After his departure in 1957, the school has taken a novel direction which is moving away from a basis in art to the approach that focused on science and society, under Tomás Maldonado's leading, improving what became known as design's 'Ulm model'. The school has permanent impact on design education through fifteen years by utilize experimental pedagogy methods also by making public relations with industry Otl Aicher introduced design development's model that attempted to bridge the gap between research and teaching. Improvement sets were guided by crew with assistants of students, working with the partners of industry, such as Braun, improving products under market condition HFG Ulm's experimental approach to teaching involved the departments cancellation as traditionally conceived within a university framework; instead of, disciplines have collected around topics like, Industrial design, visible communication, building, Information, and Film. HfG Ulm had reputation as a centre for cutting edge research and teaching in design.

2.2.5. Modernism and post-Modernism

The philosophy of modernist characterized the curriculum that organized functionally with special styles of specialization. Modernism's origins are largely industrial society, which emphasizes controlling on individual who has no much to discuss in what they are doing. (Cheng-Man Lau, 2001:32), recognizes four features that represent such a curriculum, as, aims, experiments, methods and estimation, and all of them are coordinated in logical and sequential way. While it appears to be planned and well thought out, (Cheng , 2001:33), suggests that this sample is surrounded with problems, and as it is common sample, due to its simple quality, only served to cover several unfavorable features in the curriculum development procedure, (Cheng. 2001.34).

Post-modernist's curriculum has described as owning multiple causes. Unity's notions, sureness and ability of prophecy are replaced with emergent, fluid, chaotic and pluralistic factors, which inspire/make novel meanings. When modernists are interested with efficiency, intellectuality and measurable sureness, however, postmodernists appreciate efficiency, emotions' problems and doubt. (Cheng ,2001:36) specifies the postmodernism as existence organic, liquid, flexible and interactive in dissimilarity to the mechanistic advantages of the modernism. (Spector and Hellemans in Van Loggerenberg, 2000:8), pointout the postmodernist curriculum's features as:

A. A low amount of content riched with details.

B. foundation for inclusive formative education is concentrated on mastering of general competencies and essential relations in the life.

C. The content of traditional subject rigidity is vetoed in support of the instant flexible integral of any novel knowing and processes in the curriculum to make it instantly relevant.

D. The boundaries of traditional disciplinary will be unclear in favor integral, coordinating and concepts' inter-relatedness.

E. The focused is upon comprehensive notions and the frameworks concepts.

F. The science will be described as a dynamic scope, that challenging the founded truths. Scientific action considered as a human action, that is responsive to needs, mankind and societal perceptions. therefore, it is no longer seen as mechanistic, non-personal and objective. Because of the integrated and interrelated reality's nature, the content will rather be organized about objects and problems, than about a single structure of discipline.

The curriculum going to be sensitive to the multiple cultures' values, gender "male/female", also, permit for various learning patterns. The curriculum will creat mutual and cooperative learning experiences, which will not promote instructor-centered and instructor-dependent attitude. It means getting out from school book and the approach of lecturing to activities-based hands and brain approach.

Slattery in Van Loggerenberg (2000:9), characterizes tha main post-modern's ideas of curricula as: In the post-modern preiod curricula focus discourses which enhance comprehension of the cultural, political, historical, theological, ecological and curriculum's autobiographical impact in the situation of human, social form and ecosphere instead of the designing, applying and evaluating.

Moreover, many other authors such as, (Cheng, 2001 and Doll,1993), propose, that the curriculum of postmodernist involves some characteristics as: Curriculum has to basis theory in and improve in practice. Instructors and learners improve their own curriculum by continued interaction. Self-organization of the curriculum needs to enhance through being rich in variety, problems and heuristics, also atmosphere of classroom that promotes exploration. Also, curriculum should empower both instructors and learners to produce environment where they could be in deductive discussion. Curriculum should promote interpretation instead knowledge explanation. Curriculum also should involves development of planning, that allows more flexibility and adjustment.

Postmodern architecture began as an international style the first examples of which are generally cited as being from the 1950s, but did not become a style until the late 1970s and continues to influence present-day architecture. Postmodernity in architecture is said to be heralded by the return of "wit, ornament and reference" to architecture in response to the formalism of the International Style of modernism. As with many cultural fashions, some of Postmodernism's most pronounced and visible ideas can be seen in architecture. The functional and formalized shapes and spaces of the modernist style are replaced by diverse aesthetics: styles collide, form is adopted for its own sake, and new ways of viewing familiar styles and space abound. Perhaps most obviously, architects rediscovered the expressive and symbolic value of architectural elements and forms that had evolved through centuries of building which had been abandoned by the modern style.

Also, in design studio there is no specified structure, the structure and its contents rely on the school and teachers and different in terms of the projects' number , projects' programming , also utilize of textbooks. But, the general method is that the student is given design problem at starting of the semester, improve him/her design solution, and proposes suitable solution as classes' resulte (Graham, 2003).

The design studio environment is various than the from lecture courses environment. Every student has his/her own note table for his/her academic season/semester. Students often post their sketchs on that partitions close to the table inorder to use the table in any time through the semester. Note tables in some school are attainable after class hours, thus, student often resumes his/her seat to work on his/her project outside of classroom hours. (Bunch,1993), says, studio includes most of the credit hours, more than other general courses of education, such as, history, electives courses, technology, also, practice-relative courses (pp, 116-119).

Through the process of design, the teacher grants each student the critique and feedback founded on the stage of design and solutions, a private master/tutor suitable to every single student. Students will accept or faced such critique then discuss and improve their own projects. The one-to-one criticism that happen at the desk of student is known as desk critique. At the middle semester or at the end of it, and once student has generated confirmed design's outcomes, the design studio has juries. The jury of design is event, where student displays his/her concept of design, stages of progress and result infront of all the calssmate students, teacher and reviewers of design, (Anthony, 1991). The reviewers of design often consist of practicing architects/designers and other studio professors. Also, the design's jury is also named review of design, because of the negative term jury's connotation. In the jury of design, student often prepare and bring his/her drawings and model.

The design studio classes in many architecture schools are inserted two-three times a week, 4-5 hours a day, however, usually the class period transcended this determined time, due to one by one design review is taken much time. The students' number in one studio is often between 10-20, which less than the lecture course. Generally, projects of design in studio become more complex as students advance to the next grade, (Ochsner, 2000). In design studio the process of design review often happens through two ways: By teacher feedback, (desk critique) and by the critique of reviewer, (design review). In many cases, students improve their projects one by one. Temporary or ultimate review of design happens several times each semester or each design project. Sometimes the reviewers of design are professionals or instructors in other classes or studios.

2.2.6. State of art: “Contemporary situation”

There is no adoubt, compared to the methods of traditional teaching, contemporary design studios framework of architectural schools existent allover the world is quite different one. Presently, student/learner comes within minimum 8-10 through their academic program. Although, this makes a diverse environment, as in most schools, the effect of the traditional teaching methods continue, as result it makes problems in the architectural education. present teaching of design skills relys basically on master-apprentice relations and repeating the exercises, or on the field's systematic knowledge such as, in applications of CAD, (Uluoğlu, 2000). Thus, it could be easily seen that there is no design pedagogy's theory and limited number of educational experiments.

Studio is the basic medium of architectural design education, also the conversation (fundamentally refered as critique) between student and teacher becomes the tool of this education. Here student is expected to learn by doing. But, the conversation which perhaps in one of the next forms as one-on-one, critique of jury, is very fragile one,(Uluoğlu, 2000). According to (Goldschmidt et al, 2010), often many students misinterpret their work critique as waged against themselves, which might lead to anger, hurt feelings, also resistance. Further, many learners/students particularly at their early stages of study, are depending most of the time on their instructors, also, they feel non-secure untill they get/receive from the instructor both agreement and clear guidance for the progression in their projects. Even though the critique forms are quite determining, there is a very limited knowledge from these critics on the pedagogy. A valuable research vehicle of evaluation should submit to be introduced both in design studio and lecture courses, establishment a knowledge foundation of built environment, which has ability of giving students more control on their learning, gain knowledge, also, actions and decisions design, (Salama,1999).

(Schön,1985), determined that the learning in design studio starts with non-defined problems, as a common professional education characteristic, also, he observed that learning in the studio improved during a process he named it as ‘reflection-in-action’. (Quayle,1985) determined three main profiles of the tutor:

. Instructor as source of experience or dominion

. Instructor as trainer or facilitator

. Instructor as “buddy”, In which sharing his experiences with the students as “buddy”

Academically, in fact architecture is pedagogy and every building has its own embedded curriculum that could quite impact and affect process of learning. However, the education of architecture itself is hardly criticized for non-providing competent/expert architects to the profession of architecture. Built environment could be strong learning tool. Many education theorists including (Kolb, experiential learning 1984), agreemented about the opinion that experience should be an integral component of any teaching/learning process. Their work could be traced back to the famous dictum of Confucius around 450 BC “Tell me and I will forget. Show me and I may remember. Involve me and I will understand.”

Kolb suggests to experiential learning as: Learning in which the learner/student is immediately in touch with the facts being studied (Keeton and Tate, 1978). It is contrasted with learning in which the learners/students just read, hear, talks, writes about these facts, however, never come in contact with them as part of the process of learning. But, in pedagogy of architecture, a classes in theory and history of architecture may include student train periods on theoretical practices and problems of critical thinking, instead of totally consist of architecture theories' lectures and famous architects' work, (O’Reilly, 1999. Salama and O’Reilly, 2002). Learning by experience includes not just observing the phenomenon that under studying, however, as well doing anything with it, like, experience its dynamics to know more about it, or implementing a theory learned about it to reach aimed consequence, (Keeton and Tate, 1978).

(Habraken,2003) debates that: We require to educate/teach knowledge about daily environment. How it is organized, what we could learn from historic and contemporary evidences, how to compare various examples, how it behaves through time and responds to inhabitation change or other situations. You could not trust a medical doctor who has no knowledge about human body. Everyday environment's knowledge must legitimize our profession. (Fa'izah Mohammed Bashir, et, 2013, Design Studio as Problem Based Learning in Architectural Education in Universiti Teknologi Malaysia).

Contemporary learning studio is not different than the French Royal Academy studio or the École des Beaux-Arts of the nineteenth century (Bender & Vredevoogd, 2006). Universally, This design studio is seen as the most unique and significant places or activities in the architecture courses and is usually referred to as the place where knowledge and skills from the areas are integrated and implemented (Stevens, 1998). Design studios universally apply the semi-structured learning strategy of experiential leaning; in particular, the project, (Delahaye, 2005), In practice, this method of delivery aims to offer environment of learning, where students work on design projects while teachers offer formative feedback in the form of individual reviews given often at each week classes. Much of learning taken place during discussion that triggers those activities that form, detailed, and deepen understanding (Biggs, 1999 and Schön, 1984). Design studios are significantly similar in the industrialised world. Usually students will attend the studio where instructor gives instruction. This often happen in small sets of 12 to 20 students for a period of time from half a day to two days a week. Students will participate in simulated real world activities of designing an artefact to a given brief, and will respond to weekly feedback given by the academic. Designing project is in itself often the main component of the estimated activity of the studio. The studying semester usually culminates in public presentation of the design project, referred to as a crit, at which time it is assessed by academic jury members, (Bender & Vredevoogd, 2006). The studio's physical area is characterised by a lack of formality; there is no movable furniture front of the classroom, such as, desks for drawing and drafting, spaces for model making, computers, projection screens, and space for presenting drawings and models during crits.

The aim is to support a flexible pedagogy by flexible physical infrastructure (Taylor, 2008).

After narrative of all above literature view, and since the world become more complex, the architecture's field faces many challenges of social transformation in an unprecedented scale, urbanization, climate's change and globalization, etc;. Architecture and architectural education are no exception in the sense that implications of change hit diverse fields. Therefore, pedagogy of architectural (Design) education, also, seem in need of change in today's world changing faster than ever in its history. As (Koch et al, 2006), said the changes that happening in architecture education are not compatibled of the fast changes of today's world, especially in context architectural practice, (Koch et al., 2006).

Also after elucidating the cognitive peculiarities of design process in the following sections, a complementary but non-traditional pedagogical approach to architectural education will be discussed in chapter,3. Leading to conclusion in chapter,4.

2. 3. Cognition and Design

2.3.1. Cognition

The Cognition has described as rational action, the process of gaining knowledge and understanding during thinking, experiences and senses It includes many processes, like, knowledge, interest, working memory, also, judging, evaluate, logic and calculation, solving problems and making decisions, understanding, language production as well, etc. The cognition of human is conscious and/or unconscious, physical and/or abstract, also, intuitive, such as, knowing language, and conceptual, such as, language model. The processes of cognitive are using present knowledge and generate new ones.

As (Gilhooly,1996) has mentioned cognitive psychology is broken far from behavior in response to the improvements in theory of information, non-real intelligence, also linguistics. The cognitivist paradigm has become the dominant one in 1990s. Cognitivism focuses on the inner mental activities which basically, argues that the mind's "black box"

should open and understood. Opening the human mind's “black box” is necessary and worthy for comprehension how people learn.

People are rationalistic beings, which requesting active participation to learn, and their actions/reactions are the result of thinking. There is a needed to explore the mental processes, like, reflection, memory, knowledge and solving problems. It can be seen the knowledge as sketches or symbolical rational structures. Learning is known as changes in the schemata of learner. Cognitivism, after (Gilhooly’s, 1996) and Robert (Sternberg’s , 1997) proposals of the current the approach of addressing dominant information has taken the computer as its brain's key metaphor, (a computer-like system that codes, stores, restores and transforms information), utilizes the learner’s mind metaphor as an information processor (like a computer), the information comes in, is addressed, and drives to particular results.

Although the computer metaphor united almost all of them a few cognitivists confirm the one step by one step human's nature reflection, while others point out that, in fact, that many processes could happen at the same time or in parallel, and some others have argued that computation has several inherent/natural shortcomings that cannot capture the mental processes basics. The cognitive field involves the behaviors that related to the rational skills gained with the knowledge. There are six levels for these behaviors, which it have classified to request a various reflection kinds for each one,and to be prerequisites for every other from easy to hard, from physical to abstract as, knowledge, understanding and applying, analysis, synthesis and evaluation,(Birlik, S,2013).

The knowledge is a knowing, awareness or comprehension of something or someone, like, characterization, information, facts descriptions and skills/talents, that have gained during experience or education by understanding, discovering or learning through theoretical or practical understanding of a subject. It could be implied,(with workable skill or experience) or clear,(with theoretical understanding of subject), it could be more/less official or methodical. Gaining knowledge includes complex cognitive processes: perception, connection and logic. It is expected within this level to realize or remembering information as it is. Also it is not prospective to share/utilize information. Thus, the actions within the knowledge level is coming from memorization.

Comprehension and awareness of the cognitive processes and principles will increase the capability to create new solutions. (Karmiloff-Smith, 1995), in her study, Hypothesizes that the learning in design is to be able to use different strategies of cognitive of the design thinking. therefore,strategies of cognitive of the design thinking could be design education's content, (Oxman, 1999).

Theoretically, the design cognition is a side of the human cognitive process of collecting, realizing, memorizing, remembering , and processing design information by designers (Chan, 1990, 2008). Each designer has his/her own thinking way, each with a various background and approach to design which generate unique, individual design results. Along with some other professions, architecture claim to teach design. At present, architectural design education tends to follow tacit practices, without explicit hypothesis, aims and processes. Many researches claim that the design education established on a cognitive science approach can lead to big developments in the effectiveness of the design courses at the university and contribute to the future abilities of experienced designers.

2.4. Design Thinking

The expression of design thinking is a part collective awareness of design researchers since Rowe utilized it in his 1987 book's title,(Rowe,1987). Design thinking is a totally specified and intentional path of thinking, elements of which have been professionalized within the disciplines of design. This builds/founds the designing professions as thinking which totally various from areas that founded on analysis and solving problem. However, uniqueness is not so clear, where we learned that the design is not one path of thinking. But it is a combine between a various types of solution focused thinking, which involves each of solving problem and design form that includes the problem situation's reframing, also it involves a little of the analytical logic, also, a tough deduction is needed to make sure that the design solutions will work,(Dorst, 1992K. The Nature of Design Thinking).

It should be mentioned about the difference that is between designing and solving problem. In case of solving problem, usually designers debate for the rational solutions to the design's problems,(such as, solving drainage problem of project). On other hand, in

designing, designers create various individual solutions, also, create solutions that processing most of design's problems,(such as, designing dwelling, where many problems of design that need to solve, like drainage problem, etc, will consider through the last design solution). Therefore, in comparison with solving problem more effort is taken and needed in designing, from the designer's side to improve a solution through mixing logical and creative solutions to the problem of design, a complex nature of design.

Lawson, (1993,p,10), commented (thinking's need in the problem as whole or a large number of situations at one time is one of that features which make designing quite challenging. (Cross, 2004), offered that, (designers whom have experienced seem to have "bad-behaved" as solvers of problem), particularly when they focusing on generating solution, instead of analysing problem. This cognition design side observed several times, also, could be tourn back to (Lawson's, 1979), where formalised the solving problem experiments with architecture and science students, which classified their strategies of solving problem as, (problem focused or solution focused), and supposed that the last one is more characteristic of design-founded on solving problem.

The designing in fact includes much more than analysing and improving rational answers to the problem, (Broadbent, 1998, Donna P. Durek, 1993, and Jon Lang,1987), agreed that analysis process, compositing and evaluating are at work when designing. Analysis includes gathering data, comparing and questioning, and compositing includes improving the answers and generating ideas , while, evaluating includes choosing and applying the ultimate answer. However, What does actually happen through the process of design? Are these steps following any specific procedure? Also are they stable and harmonic in various kinds of design? Brian Lawson, 1993,p,9, described this cyclic process in a various language, he has said, "the process of design is a continued fighting to comprehend the conception which is generating and connecting sketches together", Lawson proposes, this fighting in fact, is a thinking interactive operations, that remains in the designer's brain to go during the process of design and improve a solution. It should be understood, that some creative actions spontaneously happen during the design process.

Jones adopts,(Jones, 1992) the idea that design is an area where intuition and logic are integrated and the intuition gradually turns into rational introductions and tries to progress an approach which provides the mechanisms to the designer to keep his informations out of the memory without preventing against the free movement of ideas he has. In this he is assisted in reducing errors through automated linear increase in work and reduce the mechanism of rotation on the one hand and make the possibility of greater imagination without worry of going into closed areas of intuitive end of the unknown on the other hand. Jones (1992) sees that the design process consists of three main stages of thought:

1-Divergent Thinking

It means the expansion of the boundaries of the problem at hand in all directions and push it to the highest limit.

2-Transformational Thinking

It is intended, the stage of Creation in the solution, and in this case, the goal is to change the thinking of the problem is more complex for the simplicity and clarity, (Jones, 1992 p.76)

3-Convergent Thinking

A kind of reductionist thinking is the result of decision-making processes in the previous phase, and is aimed at assessing general or partial solutions that have been given in order to reach the final solution.

1-Analysis . ⟶ **2-**Synthesis . ⟶ **3-**Evaluation .

(Fig.4.1) analysis of problem by Convergent Thinking (Jones, 1992 , 69-64)

(Jones,1992) puts forward three stages as an area of integrated design where intuition and logic have three essential stages of thought as: Divergent, transformational and convergent, and three basic stages: Analysis, synthesis and evaluation. (Broadbent,1988) sees the design as a group of interactive design systems and determines four forms of the optimal design: Utilitarian, iconic, symmetric, legal.

2.5. DESIGN TYPES

It is possible to classify the approach of design through types of design. (Broadbent in 1988), characterized design types after he modified his earlier, 1973. In inclusive attempt to classify various design approaches. In inclusive attempt to classify the various approaches of design. Where he placed that the design types involve, pragmatic, typological and analogical design.

2.5.1. Pragmatic Design

Prof, Broadbent has explained this type as mechanistic processes in which a stack of stone on stone, to see and know if it could be made in order to be able to work. In principal, Prof, Broadbent, sees there is no difference, between those people/designers whom have done that, 2 million years ago and others whom throwing images of computer, then determine which one is better. Factors such as weather and materials,etc are used in pragmatic design approach as a foundation for continuance through test and mistake to see and know what could be made to work. The method of pragmatic design is used by most of the architects through including research as experiments and observations forms in order to understand users' behaviour and the environment they are designing for.

2.5.2. Typological Design

This kind of design is a pre established solutions, start from the door's knob scale to the plans of the kitchen, apartment and neighborhood, also city's strategic plan. This classification indicates to the classify of samples according to the depending on type they show, and to their common aims, also to their official structure,(offices or residential buildings). Architects can use this type of design to found a foundation to their design solutions through checkingout what users will accept.

2.5.3. Analogical Design

nature pictures, drawing, sculpture and buildings, etc are used in the Analogical Design to trigger/move the ideas in the mind of designer. The author, Amir Saeid. M. M, 2001, admits, that most of the analogical design's parts come from the designers' old visual experiences, although, existing environmental perceptions to any person can effectively help in this discussion. The metaphorical trips are utilized to encouraging different/ novel visions and the debating of analogies practiced as a method of inserting unprompted reflection to the problem.

Chapter two has presented in its first section, a brief narrative of architecture schools' development and its architecture curriculums. It started with Ecole des Beaux Arts, French, the British pupillage, and continued with Bauhaus followed by ulm school, Modernism and post-Modernism. Chapter two included Including also definitions of architecture, aarchitect, architecture education, pedagogy, design, design process, etc.

The second section began with the definition of cognition and its relation to knowledge gaining/learning, went on with the issue of how it is working in architectural and design education, where this topic has paved the road toward knowing the process of gaining knowledge through experiences, thinking and senses, etc, which serves directly to the aim of this study in its hypothesis. On the other hand it sheds light on what will come in next chapters, which clarify and support the relationship between travel and learning through personal experiences that comes during exposure to different built environments and architectual culture in their real habitats, where students' interaction will be in its high level and analysing, critical and evaluation processes become more clear.

The discussion in third section of this chapter involves design thinking and what this type of thinking requires in terms of processes of collecting information/data, analysing, comparing and generating ideas processes. Where, these processes will happen consciously or unconsciously through students' interacting with built environments to configure their personal ideas and solutions through directing themselves within these learning experinces.

Also, common design types are part of this discussion, which students are apt to utilize during analysing and criticizing built environments and developing their perceptions of architectural solutions within the frame work of these design types.

CHAPTER 3

ARCHITECTURAL DESIGNEDUCATION, PEDAGOGY, CREATIVITY AND INNOVATION

One of the aims of this study is to discuss how traveling and studying abroad and being exposed to new different architectural cultures can be effective, which can be a complementary approach to the traditional pedagogical approach of design education. Therefore, this chapter will discuss many relevant subjects and examples that support the need of a new approach in design education nowadays to make architecture students more creative and innovative in their design through expanding their knowledge prospects. The main topics that are discussed in this section are, Philosophical positions for architectural education. Architectural education "Studio". Creativity, old approaches, need for new approaches of pedagogy? Creativity-curriculum. Architectural design education, creativity, innovation. Travel. International travel , creativity, innovation, reflective thinking, perception and conceptual skills. Experiential learning hteory and its application. Spatial sensibility and embodied experience. Phenomenology and experiencing architecture. Mobility, modern mobility and premodern travel . Travel pedagogy. Travel, tourism, architecture.

3.1. Two Philosophical Positions for Architectural Education

3.1.1. Two philosophical positions

According to salama there are two main philosophies which can be as a the basis for architectural education namely, positivism and anti-positivism. (Salama, 1999).

In positivism, building is seen by architectural students and educators as an objective reality with the components and that parts which everyone could observe, understand and agree on. consequencely, in turn, focusing on the common properties of the building and its universal principles, this could make suppression the multiple viewpoints, voices and ideas,(Ashraf Salama, 1999).

instead of that, anti-positivism includes the concept which the universal laws do not exist independent of the people mind. That means the reality is believed to be seen by people as groups and individuals. In regard to the epistemology, that the anti-positivism adopts that opinion which says that groups and individuals acquire different kinds of knowledge about a phenomenon. Group and individual differences are regarded as valid and important mechanisms. Cultural and social contexts are envisioned as extremely important and unavoidable.

In positivism, a building is seen by architectural educators and students as having multiple realities. In turn, emphasis is placed upon the values, preferences and lifestyles of people as individuals and in groups, who perceive the building : This position leads to culturally/socially responsive design,(Ashraf Salama, 1999).

(Rawes,2007), said architectural education is a unique/special in which improving “sketching, concepts, and skills of criticism, by students that are informed through their capability to think in the ideas production in processes of design and in the urban, environmental, social, historical, and cultural contexts that define architecture and the built environment.

Accordingly, architectural studio, in architecture is the heart of every single educational program, allover the world, is area or a space,however, it is the common name of the centric courses in the curriculum of architecture.

A necessary platform is provided for students by the studio to exploring and experimenting a set of ideas that related to design, concepts and strategies. Also, students gain materials' knowledge during the action of making or creating their projects of design in the shape of samples and pictures. Studio not just uses to inform student about the meaning of design, but, it is helping to enhance a socialist atmosphere, while students of architecture interacting with each other and learn to critique their work together.

Lately, there was a move away of traditional approach, that focused on a teacher to teach and learning toward a student-centred approach, which based and focused on problems and curricula that based on enquiry. change like this is more clear specially at university level. In contrast to traditional teaching methods, where the responsibility of teaching is on instructor and the learning on students. In the student-centred approach teachers/instructors should be as "learning facilitators", and to support students in their efforts,(Elton, 2006. 131).

Argiris, in,(Spatial Cognition for Architectural Design, SCAD, 2011). We have already known from research on human problem solving that the thinking that I involved in creative activities is complex; to make it manageable, it is kept tacit. The existing methodology of design utilized in most schools tends to give credit to the actual process that the students go through in order to solve design problems and develop a design solution. Today's solutions can solve a large range of cases than what was considered under the Beaux Arts' "hit and miss" search for the outcome,(Lawson, 1990). The reason behind demanding this process is due to the cases' complexity involved in architecture and it deserves a thorough understanding and consideration of all issues impacting man, his natural-and built-environment.

3.2. Creativity

Often, creativity is knowen as the improvment of work and ideas, which are beneficial and original, (Herron, Conti, Lazwnby, Coon, and Amabile , 1996). (Elton, 2006) , (Mayer, 1999). (Nijstad and Paulus and, 2003). (Sternberg and Lubart,1999). It has significant in the cultural reproduction process, progress of technology and innovation,(Runco, 2004). Effective adaptability with a complicated and quick changeable world in the future needs that education, which highly focus on the improvment cognitive skills, such as, critical and creative thinking skills. Skills like those are important for countries to stay competitive with others. Probably, to be able to critical and creative thinker is necessary in this quick changing and complicated world, for people to live joyful and effective lives as rational human beings. (Wall, 2015, 233). Creative thinking, probably our highest cognitive ability, is stated, beside critical thinking, amongst higher order cognitive skills.

There are lists have improved by the American philosophical association, and these lists considered as one of the most significant and effective lists of critical thinking skills. A number of experts around, 46 from different field have agreed on the next developed list of six core critical thinking skills, (Facione,The Delphi Report,1990). And that core critical thinking skills, which have described in the "Delphireport" have listed as follows: Inference, Explanation, Evaluation, Self-Regulation, Interpretation,Analysis. When they organized into a format of a problem solving, the list will be as next format.

Identify the problem, Clarify basic concepts, Formulate the problem, Formulate possiblesolutions, Gather information, Recognize assumptions, Defend possible solutions, Form areasoned judgment, Examine consequences. It should be mentioned that the creative thinking gets its house in this sketch particularly under, Propose possible solutions, (Wall, 2015, 235). It has believed by many that, but, creativity is known as a behaviour form, which could be able to teach. Thus, creative designers development is the responsibility of the design educators, which is should be more than just to contribute in the designers development.

The aim behind that is to improve creative strategies in the courses of design as whole, with strategies like these, they transferring across the entire breadth and depth of the education of designer. However, there are few/little signals that the deliberate creative thinking and strategies are using in the courses of design as a teaching method,(Houtz, 1994 and Oxman,1999. Cropley and Cropley, 2010. Kowaltowski et al. 2010).

If the creative behaviour is the main subject in the education of designer, so new approaches of pedagogy are needed. The design has completely considered as the heart of the curriculum. However, the expression design usually used by designers and educators of design, has taken on limited connotations, with spend more focusing on the design's aesthetic and theoretical dimensions, than on the cognitive nature of the process itself (Boyer and Mitgang, 1996. Davies and Reid, 2000).

In design education there are some models of education are based on the repetition performance of professional tasks. Generally, the learning measure equated with the design product's evaluation rather than as a process of learning or skill. As a result, it has not treated enough with the cognitive skill groups of design, also, marginalizing the important opportunities of learning, (Oxman,1999. Kvan, 2001. Ehmann, 2004).

Awareness and understanding of cognitive principles and processes will increase the capability to create suitable and new solutions. Karmiloff Smith, 1995, in her research has assumed that learning in design is to be able to use different cognitive strategies of design thinking.

According to Cross, new and unexpected solutions are producing by designers, afford uncertainty, dealing with incomplete information in ther work, applying applying imagination and constructive forethought workable problems, also using sketching and modelling media as a tool to solve problem, (Nigel Cross,1990). Ryan Hargrove, Cross, 1990, went on to list the abilities that a designer must have. They must be able to solve non defined problems, adopting strategies that focusing on solution, employ the productive, abductive and appositional thinking, also, using non verbal, graphic and spatial modeling

media. Addition to that abilities, there are clearly metacognitive activities that supervise all the process and provide support. More aware efforts are needed to keep all the design activity on course towards its aim. Designers seem to be actively looking at and thinking about design even when not actually designing, (Lawson, 2006).

Donald Schön,1983, wrote about set of professionals whom seem depended on these continued learning and observation processes, and has called them, (reflective practitioners), looks at design as a reflective activity, that there is a reflective conversation between designer and situation. It can be classified this behaviour as a self regulatory metacognitive thought. Schön, separates reflection into two types of action, reflection in action and reflection on action. Reflection in action, refers to the immediatelyrecursive thought a person puts towards the action at hand, through which we could make a difference to that situation at hand, our thinking helps to reform what we are doing whereas we are doing it, (Schön, 1987). This behaviour relates to self regulatory planning and monitoring. Schön, has defined reflection on action as, thinking back of what we did to find out, How our knowing in action might contributed to non-expected result,(Schön, 1987), or post-activity reflection on the activity. This could be characterized as self regulatory evaluation.

Creativity has considered as design key item, and in its role, is important power for innovation and change. While, other sciences are interested of analysis and description of existing facts, that the a work center of designers is the seeking for new and non-expected solutions to problems.

In these days, it is usually say that a curriculum which makes students responsible on their process of learning will stimulate innovation/creativity. (Lindström, 2006), has maintained, creative capability is improved during enquiry work and inventiveness. In educational case, investigatory work points out to the utilize of tasks which allow students to found out central subjects in the field through a long periods of time. From other side, the inventiveness is connected with the need to confirm process and the output as well, also providing chances for research,testing/experimenting and review. this point has addressed the teacher's role, whom, as (Lindström, 2006), says, the teacher must be sensitive to students, "creative behaviour's signals, for example, being adventurous and ability to take risks.

As it was noted by Guilford, in, 1950, there is a role for education to play in relation to creativity,(Guilford, 1950). Knowing/knowledge, experimentation and being ready for ideas,(Cunliffe, 2008. Pederson and Burton, 2009),all of which could be expanded/developed during education. Through the education students have opportunities to participate in creative activities and learn about the creative efforts. It expands their base of knowledge and experience,therefore, enhance students' opportunities of creative success.

Addition to creativity, one of the most challenging, critical educational and professional work aspects of architect is the capability to reflect on process of design. moreover, reflective thinking, is the means that students could deal with discipline and "switch the aesthetic judgments toembodied knowledges in the built environment's production",(Rawes, 2007).

3.3. Architectural Education, Creativity, Innovation

Design is a discipline of innovation: its essence is the creation of something new and unique. In last decades, many universities made significant efforts to develop the design education quality. Notions like, innovative ideas, sentimental cleverness and creativity started to be visible as very significant in lately years. (Yürekli and Yürekli, 2004; Casakin and Kreitler,2009). The courses of design and creativity are the architectural education's backbone.

some physical skills are included within the architectural design, involving materials of architecture, knowledge of drafting and elements of structure, also, abstract elements like, environment, spaces, time and characters, (Yürekli and Yürekli, 2004). In specific, design education involves guidance students to equipments that could stimulate research for creative solutions, also, providing a strong scientific foundation for the process of decision making.

Generally, creativity's meaning is emerging as characteristic, particularly in the international marketing, (Craft, 2003). Nowadays, people tend to spend their money on innovative/creative products. According to the National Advisory Committee for Creative and Cultural Education (NACCCE), the creativity's definition is imaginary activity designed to produce original and worthy results, (NACCCE, 1999; Craft, 2003). MacKinnon has described the creativity as a mix of sciences, arts and technology also even psychological testing,(Mondy, et al, 1953, Alomar, 2003). Often, this situation is not valid enough, with the most relevant factor such as creativity in terms of social and psychological needs, (Ayıran, 1985). In the 21st century, and although, with the effective of other present architectural conceptions the functionalism is still utilized, the reason behind that due to its necessity, but it still not enough. In these days, the creativity concept should finds different/novel architectural solutions for wider community.

Also innovation, in today's world, in the 21st century, must focus on the cultivation of innovation among students, creative thinking, creative, communication skills, decision-making, problem-solving skills to live, to develop a tool to think where students can assess

their core capabilities in the 21st century. This type of regulator stimulates thinking beyond knowledge and learning to the student.

A student can be taught anywhere in the world. whether he/she will flourish or not. International mind, cultural awareness, sensitivity, and the skills of creative and critical thinking are the qualities essential for the achievements in the future. Also, information technology and allows to do work anywhere in the world. Therefore, traditional methods of teaching should allow to add new styles, which help students to develop their creative thinking and the ability of creativity. And provide students with the basic capabilities that needed to achieve their full potential and increase their association with global awareness.

The higher education has profoundly changed in the past two decades, and those involved in the academic enterprise have yet to grapple with the implications of these changes. Academic institutions and systems have faced pressures of increasing numbers of students and demographic changes, demands for accountability, reconsideration of the social and economic role of higher education, implications of the end of the Cold War, and the impact of new technologies, among others. While academic systems function in a national environment, the challenges play themselves out on a global scale. We can learn much from both national experiences and international trends. Ideas and solutions from one country or region may be relevant in another. Since academic institutions worldwide stem from common historical roots and face common contemporary challenges, it is especially appropriate that international dialogue take place. A comparative and global approach to thinking about higher education benefits everyone-the experience of one country may not be directly relevant to another, but issues and solutions touch many nations.-on the principles' level .(Philip G. Altbach and Todd M. Davis, 1990).

Thus, travel and study abroad have important impacts on architecture students and on their understanding and appreciation of architecture and its International patterns. Architecture is one of the most important cultural and humanitarian forms and it is art and science which can be different from one culture to another and from one historical stage to another. (Frampton, 1993).

International studying and traveling could also highly enhance the understanding student about the architecture structure and offer views about this area that extends more than what is taught in local educational institutions. Students who are experiencing different cultures through their travel and study abroad are exposed to a greater variety of patterns and expressions of architecture around the world. This will increase their curiosity about the design and their interaction sensitivity with the factors that have shaped architecture.

Travel also enhances curiosity about the different arts of the host countries, religions and philosophy, which certainly influenced the formation of the architecture of these host countries. and will enhance their creativity positively. Travel and study abroad greatly enhances design curricula and architecture. and equip students to learn about global environment,(Waldrep, 2006).

In fact, one of the most effective means to transfer the design idea is someone who examines the area in the within a certain culture and time. The most deep way to comprehend the impact of culture on architecture is indulging in that culture. This is the reason behind that traveling is an important part of architectural education. Traveling can make designer delicate of the precision that characterize the architecture in terms of the form and activity of the building. Exposure to different modes of cultural expression and a feel to be opened to the possibilities could furthermore enhance individual's capability to be a thinker or a creative designer,(Jones, 2001).

Whereas perception is another part of the human cognitive process of recognizing and interpreting external information obtained through sensual input by beholders. Some of the most important architects of modernism and postmodernism, such as Le Corbusier and Tadao Ando are lacking to the formal education for Architecture. Instead of that they are depending on the education of architecture of their personal experimental notes of towns and buildings when they travel abroad,(Jones, 2001).

On the negative side, the current “near mystical fascination with technologically driven design” raises several questions related to the tectonic quality of architecture, local identity, degree of build ability, and the role of drawing abilities (as the result of the eye–hand–mind fusion) In architectural creation. in order to find adequate forms of contemporary expression, architectural research and investigative study are an essential part of studio design work. Fascinated by a multifaceted world of forms, the major risk of architectural education is lack of cultural vision. . Understanding of cultural heritage and local context are the necessary counterbalances of the universal use of contemporary design techniques and technologies.

Precedent studies are an essential part of learning about architecture, But there are limitations to their relevance. Although journals and books on architecture are powerful transmitters of the precedents, and the reputation of a large number of architects is founded on our appreciation of their work. they are highly dependent on photography wherein personal verification is sometimes a shock.(expectant eye, 2004).

The main problem is in the re-presentation tool, where it can not be able to replicate or mimic the original features. This is particularly acute in the architectural case. Buildings are experienced by a moving observer, even if that the observer stops from time to time to give special attention to some spaces or details. This consecutive seeing of pictures requires to move through space as decisive to the overall experience. Photography in the 20th century has a large impact, and was related to traveling, It is the photographer’s eye, and not our own, which filters the information. Also there is a simple reason that we cannot avoid it, why photograph and other two dimensional representation could not be able to replicate our natural view of a three dimensional object.

The buildings in our direct environments or that seen through travelling, with illustrations and computer pictures are kept in our visual memory to emerge when relevant, as part of our non-verbal thinking during the tentative solution stage of the design sequence.

3.4. International Travel, Creativity, Innovation, Reflective Thinking, Perception and Conceptual Skills

The architectural education traveling and studying abroad are important, because it not just enhances the capability to learn and the engage in reflective thinking (Callihan, 2009) .

Travel and study abroad have a large importance and effect on creativity, cognition, contemplative thinking and producing ideas for students who are studying architecture. Travel enhances the understanding of the global architecture and complements the traditional education pedagogies,(Lectures + studio). Also it develops the aspects of personal and professional development of students. where the students tested architectural forms which was formed in accordance with cultural that designed by people from a variety of ethnic and cultural backgrounds. This applies to third-world countries and developing students,(Dekaney, 2008).

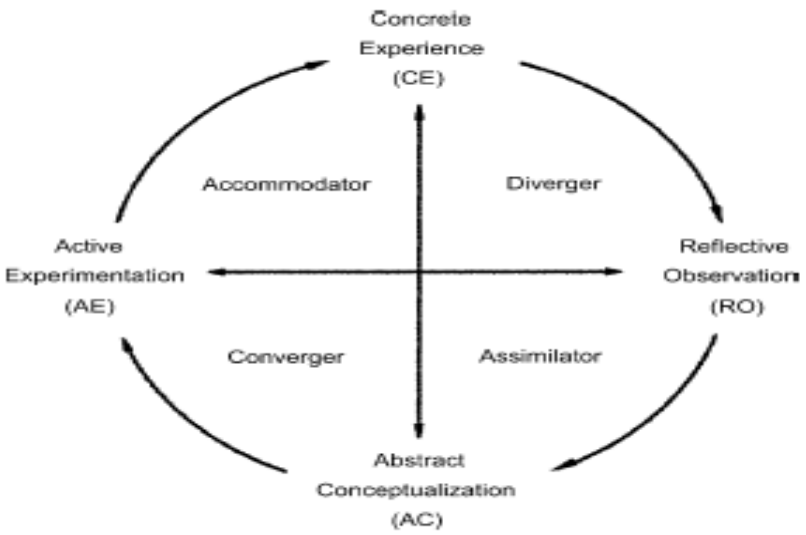
International traveling and study abroad creates awareness and tolerance of diversity (Hoffman, 2008). It can help to change the situation of inequality in architecture study. Architecture students and professionals who are sharing with people various life experiences during traveling might starting accept and afford differences,(Hoffman, 2008). Students who are studying abroad comprehend what it means to be a minority and showing more sympathy with others when they return,(Pascarella and Terenzini, 2005).
On the other hand, Studying abroad can increase the contemplative thinking about architecture and art positively through the use of contemporary and old buildings, Also to monitor and analyze the features of the urban areas and locations that the travel will not ignore it,(Guillermo and Culver,2011). As it happens in the local environment that the urban areas are only for use by custom and daily life without focus, analysis or monitoring.

study architecture travel and develop a sense of curiosity and ask themselves. Why cities, neighborhoods and landscapes are placed in the current situation. This, along with their basic studies curriculum of science, mathematics and drawing. etc,(Waldrep.p.76).

In addition, Studying abroad and direct exposure to International architecture are not only important for the architecture study. But students gain more strength of perception and wide inspiration sources. such as cultural and social environment specified by the built environment. Also architectural students become more harmonious in the world through their creativity in their designs. (Joens, 2001), said that, she strongly supported the need to travel approach in the architecture education. Travel is about self-discovery, learning and acquiring knowledge,(Joens, 2001).

3.5. Experiential Learning

Kolb's theory, 1984, about experiential Learning reports that Kolb has improved the theory of experiential learning of (Lewin, 1984), whom suggested that the learning is more easy through integrated cycle of four stage, also (Piaget, 1970), who saw the process of learning as cognitive growth process within four stages. From these bases Kolb has improved his learning model as a cycle of four stages,(Figure,5.1), comprising concrete experience (CE), reflective observation (RO), abstract conceptualization (AC), and active experimentation (AE). Two dimensions of these four stages have improved by kolb in his cycle of learning.



(Fig,3.1), The four-staged learning cycle and the four a learning styles (Kolb, 1984)

Kolb proposes, that CE opposes AC dialectically, and similar case with RO to AE. Individuals will improve preferences for one or two certain stages of the four stages of learning cycle through their life experience. Therefore, learners could be categorized into one style of four styles of learning, which are converger, diverger, assimilator, and accommodator, mapped in one of the four quadrants,(Kolb, 1985).

1. Convergers gather AC with AE. Convergers, are usually the best at finding practical utilized to theories and ideas, also they are good at problems solving and making decisions. Kolb proposes convergers prefer to dealing with technical tasks than to dealing with social and interpersonal cases.

2. Divergers gather CE with RO. Divergers are usually best at seeing physical situations from various points of view, they prefer brainstorming situations to taking action.

3- Assimilators, are learners who gather AC with RO. Assimilators are the best at comprehension a wide range of information and organizing them into concise, logical form. They are interested in abstract ideas and concepts rather than people. they are given attention to the value of the logical soundness of a theory than its practical value.

4- Accommodators gather CE with AE. Accommodators learn at firstly from ‘hands-on’ experience. Accommodators prefer to work on feelings rather than on logical analysis.

Experiential Learning offers great chances to preferable understand of the influence of global travel through different perspectives. The comprehension a particular culture might also request to comprehend its religion, language, and elements that characterize one particular group of people over another. Also the way of individuals experience and the description of their physical environment. Plays its roles in producing spatial experiences to formulate particular sentimental responses.

Montrose. L, Supports Kolb’s theory and says, Utilizing Kolb’s learning cycle model, experiential teachers could build learning aims, learning results and the strategies of evaluation. This sample is a beneficial equipment for comprehension the process that the students abroad merge experience with their experience analysis.

There are not much of the educational value in experiential education, " Activities", however, "Activities' Analysis" during personal thinking, debate and projects, which help the learners transition form the experience to full meaning then ultimately to next comprehension", (Montrose, 2002). This concept is significant, because the experiences of studying abroad not just provide some chances for experiential learning, however, the education of the architecture is based on experiential learning as well.

Many chances of experiential learning will be provided by the international learning experience. Because it "forms an educational, moral, and creative mood which expand the comprehension of both of the person and other cultures, (Mouton, p. 37). International traveling and studying abroad chances/experiences also directly correspond to (Kolb’s,1984) experiential learning cycles. According to, (Montrose, 2002), the exposure to the international environment of the studying abroad experience for first time, is the first side of the experiential learning cycle. The final stage is the most critical because the students have “ chance to change their attitude, thinking and ideas and applying these changes to a novel group of situations”. According to (Montrose,2002), these changes will transfer the knowledge subsequently into real actions.

All the Kolb's Principles,(CE, RO, AC, AE), refer to the importance of the spatial sensibility, with observation, Abstraction and interaction.

Different knowledge kinds are integral to architectural education, thus, Experiential learning could be valuable addition to the traditional methods that used in architectural education, (Lukasz Piatek). Experiential learning can prove highly beneficial in architectural education, especial assuming a limited scale of the objects to be designed. It is worth considering industrial design as the field where learning design through experince might work best. More than ever, experiential learning as an educational method in architecture, has a basic role in architects' education. Therefore, experiential learning has a big potential in basic architectural design education to increase the spatial awareness level among students, spatial and building experiments are effective equipments to prepare students to facing today’s challenges, in complement with theoretical teaching, where theoretical lectures feed students with all architecture courses, and studio will extend their design practice and the experiential learning enhance their creativity, spatial sensibility and built environment experience.

3.6. Phenomenology and Architecture

Although, my research utilizes a conceptual framework of an experiential learning, i have explored that relationship between architecture and phenomenology to gain a better comprehension of how individuals experience architecture, (Lyle D. Culver, 2011). Much wrote about architecture experience dating back to distinctions of Martin Heidegger between space concept and place, and lately, In (Nesbitt's writing, 1996), of practitioners and theorists of architecture, such as, Tadao Ando, Christian Norberg-Schulz, Juhani Pallasmaa and Kenneth Frampton, (Nesbitt, 1996).

(Norberg Schulz, 1976), sees the place as a “qualitative, ‘total’ phenomenon, which could not concluded from simply abstract or objective knowledge. What is really defining the architecture in its totality is the place, which could only experienced during a phenomenological method and experiential process. He has addressed the architecture's meaning from the foundation of qualitative totalities, which involve form, material, color and texture, etc. These elements together, make a character of the environment, which not just defines the architecture, but also helps to make a genius place or place's spirit, (Nesbitt, 1996. Norberg Schulz, 1976), is the statement that architecture comes into being when the entire environment is made visible. (Lyle D. Culver, 2011), said he believes that the essential truth becomes more clear when experimenting the architecture in non-familiar of foreign environments. Place concept, appears more clear in travelling, because, shapes, materials and compositions which in fact form the architecture's character of a specific site and culture are much more clear, (Lyle D. Culver, 2011).

Most of those architectural practitioners and theorists acknowledged directly-non-directly that the architectural experience transcends literal description, due to, all that connected feelings with the buildings, which students have interacted emotionally with architectural and urban areas when travelling abroad. essential awareness of the built environment will develop through this interaction, and furthermore it goes to create better appreciation of the pattern in which architecture begins to make concrete environments, (Norberg Schulz, 1976).

3.7. Spatial Sensibility

Spatial sensibility is that idea permeates writings come from multiple fields: philosophy, anthropology, architecture, sociology and embodied experience. The concept of experience embodied has discussed within psychology. The basic principle of the embodiment goes back to each experience recorded in the body, brain and mind as well as the innate ability to learn and adapt with changing in the environment. We have experience because of the sensual organs of the body. Such as. (Touch, seeing, hearing, smell, taste) that send instant signals to the brain to inform it of every minute change. The brain interprets the signals associated with each event in order to organize an appropriate response to the body. Either defensive or take measures to step down. when we experiment something it becomes true for us.

So events are the basis of experience that accumulate over time. (Maureena Bivins, 2011). We are always in relationship with the things in the world. The body connects things and places. since we are somewhere through our body. Thus, between the body and place there is much more than attitude. There is our experience and our data to have a place is also to exist as a sensible body,(Heidegger,1971).

For instance,(Maurice Merleau-Ponty- French phenomenological philosopher, 1908-1961) makes a compelling argument for embodied experience, a means of interacting with the world based on knowledge gained through first-hand, bodily experience. ‘‘Also, we are prevented through space, humans' bodies full of dynamic cellular processes and almost the atoms made up of space,, he writes in “Eye and mind”. Our way of being in the world is a continuous transformative state – we redefine ourselves constantly, in relation to oursurroundings, which we in turn create, shape or alter through interaction and experience. When it comes to architecture, embodied experience means that we relate to it with all our senses deployed in motion, so that qualities thought secondary by Cartesian tradition – colour, texture, the sparkle of sunlight on a windowpane, the echo of footsteps – become primary to spatial perception. Then, spatial sensibility can be defined as the unselfconscious awareness of the body in the world, our intersubjective interactions with it, a receptivity to the transient amalgam of sensory cues which make up the sense of a place at a given moment in time.

Before they begin their architectural education, young space-makers work from a place of innate spatial sensibility. They have a gift for immersing themselves completely in the spaces they create, and when they create, they instinctively turn to their own spatial experiences. It is largely practice based, while also requiring the systematic assimilation of a great deal of abstract knowledge. This accumulation of abstract knowledge, is often over-emphasized in both coursework and design studio, and leads to the steady erosion of the student's spatial sensibility. Moreover, working almost

exclusively with the abstract attributes of space and relying mainly on spatial intelligence can result in a limitation of the creative design process to the formal language of architecture (composition, proportion, geometry) and to the bidimensional world of conventional representation – be it on paper or on the computer screen. Therefore, the teaching of architecture should also take into account developing a strong sense of spatial engagement in architecture students, a capacity to relate to existing and imagined spaces through spatial sensitivity.

3.8. Mobility, Modern Mobility and Architecture

Even in eras when mobility was restricted for wider populations, architects – or more broadly speaking, architectural knowledge – always traveled. This occurred as dominant cultures sought to expand their architectural and social order from centers to peripheries; for instance, from the ancient Greek metropoles to their colonies, or from the centers of the Roman or Byzantine empires to their provinces. In addition, such cultures also promoted the exchange of architects, master builders and other constituents of spatial production, which produced a mutual historical indebtedness between cultures of different faiths, as in the Christian and Islamic worlds during the Renaissance, (Kost of 1977: 61–62) or the Islamic, Hindi, and Buddhist populations in their transcontinental architectural practices in Eurasian and North African territories in premodern eras. Such exchanges are reminders of the fact that notions such as the 'West' or the 'East' are in fact amalgamation of multiple traditions and cultural lineages that are usually obscured by these labels.(Jilly Traganou and Miodrag Mitrasinovic, 2009).

Architecture played a pivotal role in the history of Modernism . Since the advent of modernity, architectural developments owe largely to innovative modes of travel. During the eighteenth century, the development of neoclassicism, the first truly international style in architecture, was inseparable from decisions by the movement's founders to expand the grand tour beyond the frontiers of Rome to include Greece. The École des Beaux-Arts in Paris, which taught the language of neoclassicism (among others), attracted students of various nationalities. Owen (Jones's 'Grammar of Ornament' 1856), which became an inspiration and a guide for architects from the Victorian to the modern eras, was a result of the author's travels in the Near East and Spain. it polychromic patterns from Europe's 'others' were meant to also revitalize the architecture of the 'center'. At the same time numerous 'Orientalist' architects cross-pollinated this style with architectural vernaculars and traditions from various locales around the world, often in the service of colonizing regimes. (Jilly, Traganou and Miodrag Mitrasinovic, 2009).

Some important examples of twentieth-century architects' works in the scale of the city were projects for the colonies, which exported but, most importantly, tested architectural knowledge in the new imperial territories. Simultaneously, aspiring colonizers of non-Western countries, colonized subjects, and citizens of countries that remained uncolonized but were influenced by the overall nineteenth- and twentieth-century process of internationalism, embarked on their own itineraries in order to teach or learn from their respective 'others'.

In the first decades of the twentieth century, the very development of the inherently cosmopolitan Modern Movement would have been almost unthinkable without frequent exchanges among architects, designers, and artists, during a period marked by wars, revolutions, and the slow dissolution of empires. From the early twentieth century, exploratory and educational travel was vital to the development of the international language of modernism. Moreover, within this framework, travel was often necessary for apprenticeships or overseas architectural commissions.

Landmark events in modern architecture, such as the Congrès International d'Architecture Moderne (CIAM) (1928–59) (the most heroic of which was the fourth CIAM in (1933), held on a cruise ship en route from Marseilles to Athens) or the Ekistics Symposium in Delos (1965), could not have taken place but by means of traveling. The epistemological apparatus of modern travel, and the new modes of visuality and subjectivity that it evoked, were crucial to the development of modern architecture that was prone to a belief in technological utopianism. Intellectuals of the modern era realized that the various aspects of motion (from the broad allure of tourism to the specifics of automotive mobility that shaped the modern metropolis) could change individual and group experiences.

3.9. Travel

3.9.1. Travel Pedagogy

Inquiry into architecture, space, and travel has become particularly important among the proliferating architecture study abroad programs worldwide. These programs, sponsored by architecture schools, participate in a tradition that traces its lineage to the grand tour and the American Academy in Rome, founded in (1913). In (2001), in her essay 'Unpacking the Suitcase: Travel as Process and Paradigm in Constructing Architectural Knowledge', Kay Bea Jones claimed the need to articulate a 'travel pedagogy' in order to 'resituate travel as critical to cultural constructions of architectural knowledge' (Jones, 2001). By the term travel pedagogy Jones means 'experientially centered studies dependent on some cultural, geographic, and paradigmatic shift that radically alters sense perception and challenges visual and spatial cognition' (Jones, 2001). Jones points to the loose relation between travel programs and architectural curricula, the weak engagement of foreign resources, and a notable hesitation to establish experimental methods of inquiry as well as to accept and rethink the unavoidable architectural and cultural changes that affect 'great places'. A reconsideration of travel as architectural pedagogy, beyond its potential to enrich the scholarly approach to travel, would also contribute to more reflective modes of travel for architecture students and professionals.

3.9.2. Premodern Travel and Area Studies

Relations between travel, spatial representation, narratives and practice in conditions of premodernity have been addressed by scholars in area studies, as well as by scholars of architecture who have worked in intersections with domains of area studies. Examples are the works of (Samer Akkach, 2002), (Jilly Traganou, 2004) and (Laura Nenzi, 2008), among numerous others. Such works scrutinize the influence of travel and geographical imagination in domains of culture that involve spatial thinking (but do not always have direct effects on architectural production), as expressed, for instance, in the literary – and at times pictorial – notions of the meisho (‘famous places’) in Japan, or the fada’il (‘virtues’ or ‘excellences’) in Islam. Such works examine the effect of real or imaginarytravels on travelers and their communities, by paying attention to their cultural, social and gender identities, and/or to modes of seeing, mapping and narrating the places they visited, as well as the broader world. Also, these works emphasize the relations between travel and broader religious and sociocultural domains, and approach travel as a multisided process that affects knowledge production and acquisition, identity formation, and sociopoetic imagination and becoming. These works look at a wider array of cultural forms that relate with or emerge through travel, from maps and guidebooks to diaries and poems.

3.9.3. Consumption and Tourism

Architects and architecture scholars have an ambivalent relationship with the subject of consumption and tourism. Following the Pevsnerian tradition of prioritizing paradigmatic architecture, architectural scholarship has been slow to absorb how national, global, and corporate interests interplay with architecture for the tourist industry. Like sociologists of tourism, who in the 1990s began to acknowledge the importance of ‘paintings, guide books,

literary texts, films, postcards, advertisements, music, travel patterns, photographs’ (Urry.1995), architecture scholars during the same period also expanded their material of inquiry beyond buildings. Most importantly, they also expanded their inquiry to include built works that had no particular normative value but were conducive to an understanding of architecture’s participation in broader sociocultural contexts. The parallel interest in consumption as an exchange of meaning and an act of identity expression, which architecture scholars endorsed following Jean Baudrillard’s description of consumer society (1968), paved the way for this new attention to tourism. Gradually, tourist-related architectural questions became legitimized as a subject of study, and the stigma that tourism carried as a mass culture practice subservient to capitalism – and thus, for some, not worthy of scholarly attention – was slowly removed.

Elizabeth Diller and Ricardo Scofidio set the tone in the early 1990s in their book Tourism of War, which expressed a view of tourism that was unconventional at the time and suggested that.

Tourism, a tacit pact of semi-fiction between sightseers and sightmakers … results in a highly structured yet delirious free play of space-time which thwarts simple, binary distinctions between the real and the counterfeit, ultimately exposing history as a shifting construct, (Diller and Scofidio, 1994).

Since then, several notable works – by (D. Medina Lasansky and Brian McLaren,2004), (Keller Easterling, 2005), (Joan Ockman and Salomon Frausto, 2005), (Brian McLaren, 2006), and (Miodrag Mitrašinović, 2006) – have addressed the relation of tourism, spatial production, and architecture, taking into account the global flow of information, investment, consumers, and consumer goods as well as broader geopolitical currencies. Importantly, these scholars, like the postcolonial scholars discussed above, situate the produc-tion and consumption of tourist-related enterprises within larger scholarly discourses and geopolitical relations.

Lasansky and McLaren's volume Architecture and Tourism: Perception, Performance and Place, examines the reciprocal relationship between the modern practice of tourism and the built environment, understanding tourism as 'both a process through which sites are experienced and as a cultural force that has shaped and interpreted them' (Lasansk y and McLaren, 2004). Lasansky and McLaren recognize the multiple forces that shape the culture of tourism. In addition to architects, there are planners, politicians, preservationists, artists, entrepreneurs and tourists and in addition to buildings, there is a wide variety of materials, including propaganda, policy, photography, souvenirs, film, and print (2004: 2–3). In Architourism (2005), editor Joan Ockman coined the homonymous term as an analogy to ecotourism, addressing the dual phenomena of architectural sightseeing (which culminated in the notable 'Bilbao effect') and travel by contemporary architects to distant territories as tourist-theorists of architecture. Architourism expands on the views of Dean MacCannel,(1976) as described in his book "The Tourist", rejecting the derogatory perception of tourism as inferior to other forms of traveling and seeing tourism rather as an expression of modern man's 'quest for authenticity'.

This chapter has presented some studies and topics that are related to the problem of study and supports directly the hypothesis presented in it, where This study assumes that the key to help students to be more creative and successful in generating creative ideas for architectural solutions. Is to providing students/ designers with awareness and creativity also a better understanding of the design and the process of architectural design. By experience new/different architectural cultures and built environments and interact with them through traveling and studying abroad. This chapter can be divided into three main sections, in addition to sub-sections related to each section. Chapter three which named architectural designeducation, pedagogy, creativity and innovation, has started with the philosophical positions for architectural education. It also discussed traditional education and the need for new methods that focus on giving students more responsibility to learn by themselves through experiential learning instead of putting the responsibility of education only on the teacher. The second section presented experiential learning one of the most important theories of 21st century about learning by Kolb, (Businessballs 2017. Experiential learning, Kolb, 1985). And its applicability in architectural education is discussed. The third section was dedicated to the issues of mobility and travel, their relationship with architectuer and travel pedagogy as part of architectural education was discussed.

Several topics discussed in this section are related to the process of inquiring, gaining and developing architectural knowledge and skills during personal experiences when traveling, learning about different architectural cultures while interacting with their built environments.

From this concept the discussion moved to important section in this study, which is travel and its relation to creativity innovation, perception and conceptual skills, which represents the backbone of this study's hypothesis.

Where the importance of travel is not just in expanding theoretical facts that students learn about in their classroom, but travel also has positive impact through discovering, observing and analysis of the built architectural environment. The importance of travel also appears in changing the local environment, which through habit and daily use, students do not give it any attention rather than if they experience new architectural environments and cultures where the focus and desire to know more are at the highest level.

Since one of this study's objectives is to develop the architecture students through their architectural education to become more creative, therefore, creativity and its relation to architectural education has discussed, where creativity/innovation has determined many times as developing work and ideas, improving cognitive skills, critical thinking and creativity. The basic critical thinking skills that have been identified by a number of scholars, such as reasoning, explanation, evaluation, self-organization, interpretation and analysis, and their organization have been explained. Creativity in design is very important, so there is a need for a new approach to architectural education, that urging on new and unexpected solutions to architectural problems.

CHAPTER 4

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

4.1. Discussion

Travel in educational trips gives students chance to find out new/different concepts and possibilities from the expression side of their creativity that perhaps is not offered by their teaching methods in the local environment. As experience, Experiential learning and travel trips do not only open up the potentiality of inventive expression and professionality for students. But, they enhance their knowledge about architecture and its different patterns around the world, which increase their interest in architecture and carry them to the higher levels of creativity.

An opportunity of experiencing and examinining the modern and old/historical buildings which architecture students learn about in the classroom through theoretical lectures and models inside the studio at the university does not only enrich knowledge about the place, but it provides an opportunity for the interaction of all the student's senses with the place which increases their awareness about architecture and design.

The complicated understanding of the space especially that side which is related to one's emotional and sensual experiences cannot be taught and/or learned or improved within the cognitive processes only, (Langer,1942). Keeping/saving experiences in the memory especially that ones which have worthy meaning, such as, passions, beliefs and attitudes, also all changes that might taken place within a new experiences' impact, (Conway,1990), are effective in enhancing student's learn and as result their knowledge, etc;. Designers use the passions and knowledge that are stored in their memory's experiences to help them in the process of inventive design,(Dawning, 2000).

Feeling excited to discover something new and different cities / host countries has positive impact to promote curiosity among students to learn about other relevant areas, such as, arts, drawing, urban design and interior design, etc.

The sense of freedom through interaction with real and open built environment is an important aspect of architectural education which cannot be available within the classroom in the university. Also this sense of freedom enhances greater sense of self-confidence in students on a personal level and on their architectural design solutions, more than if they just study it within the classroom.

Direct exposure to these built environments that the students have already get informed during their studies at the university, in the lectures and others, stimulates the sensibility of place, where architecture involves a group of non touchable concepts, like, emotions, weather and the soul which brought spirit to the building/construction and its area, (Norberg-Schulz, 1976).

Seeing and observing different civilizations and architectural environments is not only useful for sake of experience, thinking about and observation of situations of the urban surrounding environment, but it is also important in that they can be referred to as specific architectural examples, (built buildings) and be utilized by students their creative work as the result of seeing this environment on the ground, which makes it easy to remember than if they just see it in pictures or models within the university classrooms. Remembering architectural situations or urban environments has proved for many to be useful for their creative/inventive work as urban designers and architects, (Jones,2001).

The great diversity in the global architectural expression and exposure to the various paths to improve the urban spacesand buildings/structuresoffer students an opportunity through observation, thinking and critics, etc; to open their eyes and brains on creative ideas in solving or formulation the design problems, which lead them to innovative designs. These variousness are usually formed by cultural effects, thus, this concept (diversity) becomes more pronounced in traveling abroad,(King,2006).

Interacting between/with people from various countries raises students understanding of multiple cultures and international knowledge and awareness highly, (Van Reken and Rushmore, 2009), that either is not provided or is limited in classroom lectures, in traditional pedagogy in arhitectural education.

The impacts of experimental educational experinces through traveling, studying abroad and even in local trips offer a great variety of multidimensional experiences for the students (Professional or personal level), that will remain and grow up with them all their life.

4.2. Conclusion

The reason for this study's subject selection has been explained to be the fact that a low level of progress and of creativity improvement among architecture students mainly in architectural design studies, has been observed by the researcher. The literature review has, also, supported this view strongly, proving that it exists as a general problem, especialy in the present era when the world and the profession of architecture confronts grave changes due to the multi-faceted impacts of globalization.

Many practising architects and theoreticians have written about the need of change in architectural education with regard to different aspects, however, very few has touched upon the significance of ‘Travelling’ as a pedagogical approach.

Taking this fact as a challenge, this thesis assumes ‘Travelling’ as a valuable pedagogical tool which has the power to increase the students’ capability of creativity, visualization and many other virtues of being an architect, through the discovery and push for inquiry, investigation and critical thinking while experiencing the built environments different cultures.

Therefore, this thesis aims at: 1. Reaching a better understanding of the architectural design process and relevant pedagogies, with special reference to the question of foreign country experiences and find the key solutions for architectural design problems outside the local architectural environment by visiting new cities/countries. 2. Creating awareness in the virtue and value of getting to know the foreign cultures and the architectural-designerly ways they express their cultures as alternative knowledge resources, and directing students to them, through suitable pedagogical approaches to help them create a wider scope of ideas and when they try to find a solution to their problem of architectural

design. 3. Moving on to a deeper understanding of contribution visiting and experiencing different and foreign to creativeness in design process, to a greater awareness which would help find innovative approaches outside the local architectural environment in solving architectural design problems, by visiting new cities/countries.

And bring a proposal for a non-traditional pedagogical approach to architectural design education.

On its way to develop the proposal this study encompasses some number of underlying theories and concepts derived from architecture and other fields like, philosophy, cognitive psychology, education and managerial sciences, such as Kolb's theory of experiential learning, Lawson's concept about design and design thinking ,Jones' concept of design and its process stages, as mentioned in different chapters.

This study highlighted the dominance of certain ways and specifications, such as design studio and theoretical lectures in the traditional pedagogical approach to the process of architectural design, which affects the progress of architecture students and development of their skills in learning. The predominancy traditional pedagogical approach is discussed in terms of students' design thinking is following the same concepts and where process of architectural design by practicing some format examples of design that have been already utilized is applied, while the instructor has the 'Teaching' role.

This discusion shows the impact of the current pedagogical approach in architectural design education on the way of thinking and work of students is to grow them in the narrow limits of the studio + lectures teaching style, which leads students to be kind of lack of creativity and ability to innovate in thedesign work.

The fact is that the current teaching methods used at the university. (Studio + lectures), are right and good as practice and getting knowledge about design, but they are rigid which means they are not flexible enough at creativity and innovation, due to the limited area of studying where the studios are just spaces of hypothetical work away or close to real-life within the studio at university and lacks development or adding other ways that will make architecture students creative, innovative and more successful in the analysis and solving

architectural problems during the period of their education education and of professional future.

The fact of existence of a low level of progress and creativity among architecture students in design and design process limitingtheir development and creativity point out to some deficiencies in the current pedagogies applied in architectural schools.

Thus, in the search for a new approach which could effectively deal with these deficiencies, ‘Travelling’ was selected as a possible effective component in architectural education, to be applied in the from of educational trips - Local or foreign - or study abroad programs for the learners/Students to the different built-environments and architectural cultures to see, to perceive, to inquire and discover the forces behind the physical structure.

It is considered as a fact and supported by the theories and concepts that are encompassed in this thesis, and by the documents scrutinized during literature review, that through this approach, students are apt to gain new design skills and cognitive abilities through investigating new architectural languages. And equip architecture students with different views from various cultures through the interpretation and criticism to provide creative designs

This study assumes that the key to help students to be more creative and successful in generating creative ideas for architectural solutions is to provide students/ designers with awareness and creativity and also a better understanding of the design and the process of architectural design by experiencing new/different architectural cultures and interact with them.

The following recommended structured perceptional approach shown in Figure 4.1,can well be used as a tool which tries to describe students' observation process during their travel and experience of the built environment. Here, basic analytical concepts of architecture which are form, function and construction are used, as to maintain the structure of perception. It may guide,how to analyse, understand, evaluate and criticize the built environment easily. Also, feedback of these process will feed students’ knowledge, design education, thus, their designs.

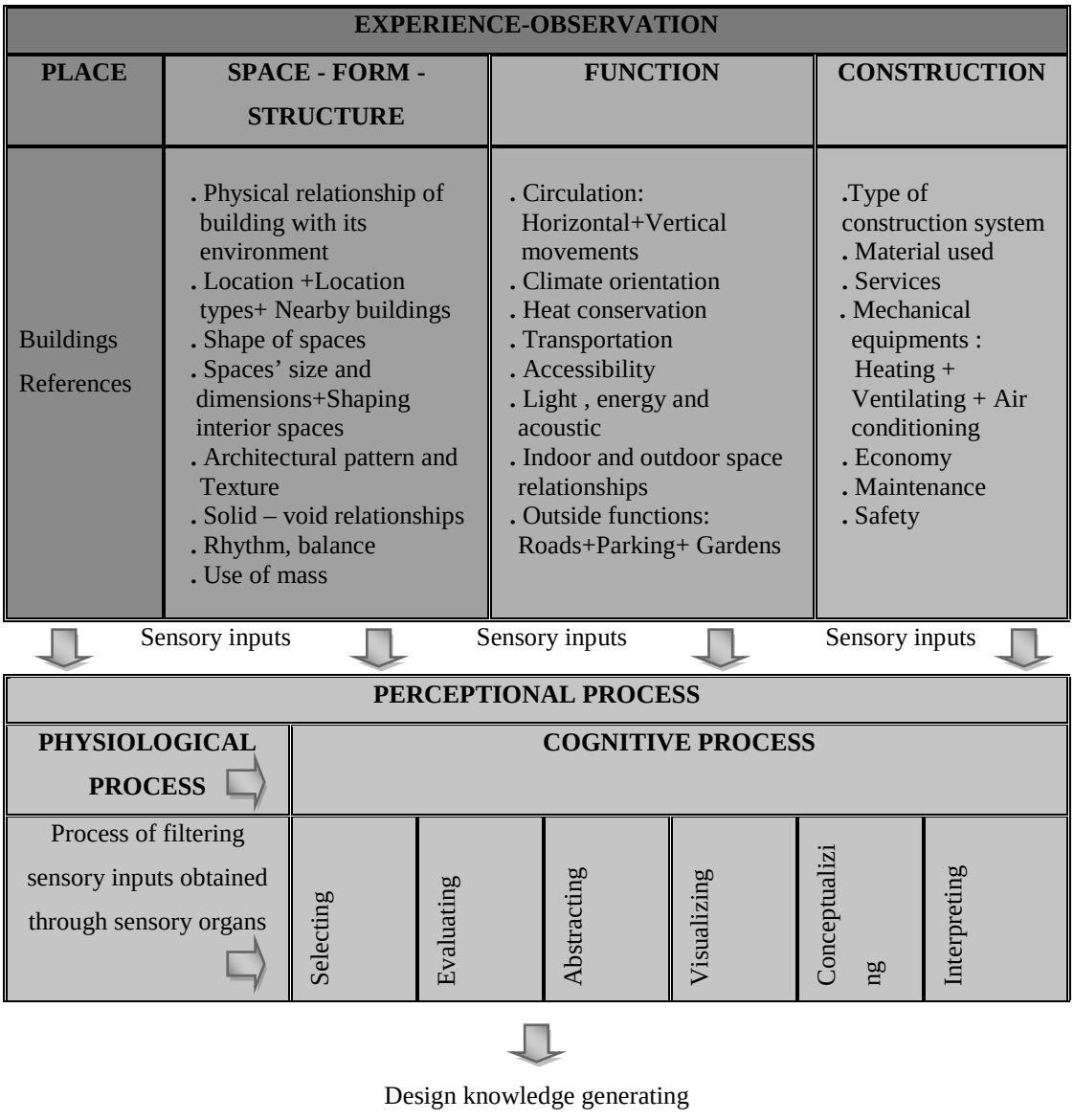


Figure 4.1: Structured perceptional approach for observation, (Adapted from, Uzunoğlu, K. and Özer, H, (2014). Toplu Konutların Ön Tasarım Aşamasında Değerlendirilmesi. Evaluatıon of mass housing at the pre- desıgn stage).

Using this approach can achieve many important goals including the improvement of concept developing and designing capabilty of students and making them move on to a deeper understanding of designing to create new architectural solutions and support his/her design decisions. This pedagogical approach aims at creating an internal cultural library of different cognitive experiences for students through seeing, inquiring and interacting with other new/different built environments, and at enabling them to produce relevant knowledge anew, referring to it and using it in their own design processes.

This thesis examines how design education is affected through seeing/viewing other different architectural cultures, environments and problems in their original habitats by visiting, perceiving and examining them, historical buildings that chronicle these cultures and civilizations along with the non-historical, vernacular or contemporary ones. The impact of usining these buildings-even temporarily-, analyzing and interacting with them and finding out the reasons behind using certain solutions in their construction will prove to bestronger than the effect of traditional steps involved in educational approach of architectural design process, since students can become more aware of the process of architectural design and read them to be more innovative and creative in design solutions. (Dubos, 1982).

Design studio is the core of architecture curriculum. It is the place where the simulation of real statuses take place. All the courses that are related to the design education are connected to design studio, with theoretical lectures that offer history of architecture and environment, etc, which all of them are known as traditional architectural education pedagogy. The interaction between students and instructor and between students themselves in the studio, where they discussing a problem to find solution within what the instructor offers, when instructor play sender role while students play receivers role. In traditional architectural education, students are encouraged to discuss the case of problem inside studio which enhance the capabilities of cognitive and knowledge just within the studio.

Today's needs are different than yesterday's needs, due to world's evolution. The world with this large and quick evolution of technology and people's lifestyle and the openness of cultures to each other needs to keeping up, where architecture and architectural education won't be exception, through its impact on this evolution, on the other hand the impacts of this evolution on it.

However, in traditional architectural education, the interaction between the students and between students and their instructor, and emphasis most of the time on solving the problem only as it mentioned above remains right and effective in learning process, however, it still limited and within narrow limits, which do not offer enough space to creativity and innovation to take place and grow, which today's needs require. Also it suffocates the improvement of students' education process, due to isolated students inside studio's walls.

At this point, main idea of this study becomes to develop a non-traditional pedagogical approach to architectural design education, in order to enhance their design education to make them more aware about architecture and creativity in their designs. What the proposal states is to send students abroad to see, directly interact, discover, to get to know through experience and inquiry the different/new built architectural environments in its therr original habitat, which will offer to students' senses an opportunity to explore, analysis and learn by themselves.

Such an opportunity of experiential learning with observing,using spaces/buildings and their functions, users' movements, materials and solutions used, even touching and smelling these built environments are very different experiences than theoretical studies simulations, models or using pictures/photos/images of these spaces/buildings. Performed in the classrooms of architecture schools.

In architectural design, 'learning-by-doing' is a life-long experience. However, we need to inform students, who are new in the architectural design world, about experiential learning and its role/benefits in architecture. That we need to make them aware from the beginning, about the impacts of developing thier personal skills and their spatial sensibility through

their personal experiences on their architectural education and their designs.That means we have to begin to stimulate the opening of their ‘analytical eyes’ for discovering the benefitsof seeing and spatial sensibility. Where the body's experience in real places/buildings has different impact than pictures, simulations and models, etc of these spaces, where students can see but they cannot touch or smell the places/buildings, therefore, spatial sensibility is important for sensual organs of the body such as smell, touch and hear. When someone experiences real spaces/buildings through his/her sensual organs this experience will live in his/her mind and will be easy to remember and recall to use when they need.

Traveling, seeing and studying abroad could be great ways to complement the architectural curricula, because they are kind of experiential learning. Quantifiably, experiential learning is so hard, because it depends on experiences, where it works as support for the individualized knowledge, which happens out of the classroom atmosphere, also it provides an opportunity for students to expand in different, unique and inventive trends,(Montrose, 2002). Travelling will enable students to see, live and interact with spaces/buildings that they can only read about in history architectural books and journals or which are mentioned to them by their instructors in the relevant courses- but from their own angle of vision/perception, being hypothetical cases. While travelling, during Ttheir experiences students will also be able to examine/experience many things, such as, materials, scale and buildings' smells as well, which means that they will come across with ‘Real-life situations’. There is a deep influence of these direct facings with urban spaces and architecture on the understanding and appreciation of students to the design importance(Kitsantas, 2004 - Norberg, Schulz,1976 - Pallasmaa, 1986).

The approach of travelling can also, complement the curriculum of architecture, if an ‘international design studio’ component offering possibility to work on real projects in host countries can be effectively inserted to it. Given this opportunity students will experience the situations that relate to the environment and culture of the host countries, which is something impossible in their classroom.

All of these experiences will be stored like references in students' memories,which they could get back to and use in studio and their work in the future .

Travelling is, also, a significant pedagogical tool in developing ’spatial sensibility’ 3.7,P, 65. Since spatial sensitivity includes bodily existence in the place/space, and this can be provided only through travelling, it can be utilized as a very effective complementary strategy to the traditional design teaching methods, defined as the unselfconscious awareness of the body in the world, seeing and spatial sensibility can drive students towards creating spaces as embodied experiences, rather than abstract constructs.

The experience of studying abroad has,also, deep impacts leading to improvements in their personalities, (Wortman, 2002),such as becoming more mature and independent, having more confidence in themselves, getting more aware of common benefits between cultures, becoming more tolerant of the cultural, ethiical and national differences. (Angulo, 2008 - Pascarella and Terenzini, 2005). Learners develop, also, conceptual frameworks as to understanding the architecture and cultural, and social standards through different cultureS as well as spatial and physical situations.

Students gain valuable knowledge while traveling and testing other different architecture cultures, and when convey it to their design studios, learning is apt to be smoother and ideas to be clearer. In addition, design processes of students are expected to be bold, generating more creative and innovative, different and unique design proposals for each of them, due to their different experiences becaus of their own individual bodily existences in the foreign environments,which become inspiration sources remaining in their memories library. Therefore, recalling examples from it will be faster with more confidence, since they will have been experienced as real-life cases, not just seen theoretically on papers and memorized without understanding deeply. Also, a chance to merge more than one architecture pattern in one design seems to exist due to experience of the architectural environments which exhibit examples of different cultures, side by side.

These trips are not about historical knowledge between different cultures and societies but to sharpening student's "knives" so they have a multicultural vision and build means to interpret builT architecture. It is an invitation to participate in different architectural cultures and using their contents/elements by students to enhance their education.

All of these points, clearly supports the need for the introduction of new pedagogical method/s to traditional pedagogy in the education of architecture, which have been mentioned in diffefent sections of this thesis, such as, 2.1.7, P, 19 second paragraph, 2.1.8. P, 21 first paragraph and 3.5, P, 58 second paragraph.

'Travelling' is considered to be one of the possible alternatives, which push the students to attempt to discover different cultures and their built environments in their natural habitat, to understand their ways of solving architectural problems related to the differences in between them, to use the same places that they are going to design such as, houses, museums, etc., in those different settings, to gain knowledge through experiencing them, and to produce new desing knowledge, which will support their education , and which will enhance them in developing new concepts and design proposals.

This research work had as its hypothesis and through the literature review this assumption was suppoerted by the writers, theoreticians and concept developers on studies relevant to architectural educatIion. Therefore, it is fair to adopt the conclusion that when integrated to the curriculum in the way to coordinate, corporate the architectural design and other courses, proposed approach will prove to be beneficial in architecture field in many ways, as have been discussed and stated in the previous sections of the 'Conclusion'.

Future architects will be expected to be professionals full of awareness, to think globally and act locally, think critically, to produce knowledge through experience and discovery, and to be armed with skills and competencies necessary to be innovative.

It is conceived that the proposed approach in architectural design education will help future graduates develop these particularitits and be ready for the faster-than-ever changes in the architectural environment.

4.3. Recommendations

Researcher recommends to begin applying this program/hypothesis with the begining of the second year of architecture universities, which allow students to build up a foundation about architecture vocabularyies, history and basics of drawing and design at first year. On the other hand start applying this program/hypothesis from early stage of studying will prevent this thisis's problem to happen or to growup, also as it mentioned in conclusion, P,82, third paragraph, we need to make architecture students aware about their presonal skills and spatial sensibility to get their benefits early through experiential learning.

This program/hypothesis could be applied in conjunction with approved courses at architecture universities, where students at the first semester of second year will travel, studying abroad and experience host countries' built environments, then get back to their classrooms/studios with all that gained knowledge which will appear on their design later at studio.

At traveling time instructor will play facilitator role and lives the experience as one of the students' friends.

The researcher recommends future other researches to enrich and expand knowledge in this area.

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APPENDICES

Appendix 1: Examples of curricula which include study abroad programs from two international universities

Below are given the examples of curricula which include study abroad programs from two international universities:

1. Rice University in Houston, Texas, school of architecture ,USA. Rice university-Houston, Texas has taken the third place of best top architectur schools at USA, according to ArchDaily.com and Design Intelligence the top architecture school, (2013). Two undergraduate degrees are offerd by this school, first one is architectre bachelor and second one is architectural studies. Addition to that, Rice university offers a preceptorship, which provides year-long experience for students, with best companies allover the world. They emphasize on global education , which prepares students with a well-rounded and international focus.

Rice University offers:

A. Rice has unique program, which puts students for one year in master offices oversea to gain experience as complementary part of the school curriculum.

B. Traveling and studying abroad are avilable opportunities for architecture students in Rice's curriculum.

Students are taken studio starting from first semester, followed by studios in every semester. Every studio presents a chance to explore various sides of architecture to improve particular skills and critical knowledge. In order to complete design studios, students also are take other courses, such as architecture's theories and history, technology. Also, students are taken flexible and general courses, such as, social sciences, fine arts and humanities, etc.

In their third year, students will go with their instructors/ trainers through Houston and travel to other local and global cities as part of their studios. Students in forth year are take a design research seminar in the first semester, that realates to their studio next semester. These two semesters allow students to continue and improve more deeper research and design proposal. For fifth year preceptorship program offers students an opportunity, in which every student work/practice at one of the best architecture companies allover the world.

These architecture firms are selected by the Regional Science Association, (RSA)'s administration, with input from the student, from a selected list of firms with which the (RSA), has relationships. The Preceptorship is fully integrated into the curriculum, through practice, such as, *Arch 500 preceptorship Program. And it is a key part of every student's education. Studentswork at officesfor a minimum of nine months, which allows them to get involved with long-term projects in a meaningful way.

When student return to Rice to continue studying in final year for the B,Arch. Students are take graduate-level studios, which enhance their professional experience integral and also might study abroad for a semester in our Paris program, which is described as follows:

RSA Paris founded in 2002 with task to offer opportunities of study abroad for present RSA upper-level undergraduate and graduate students. Chosen for both semesters is made by application through spring semester of the year before. In addition to an advanced design studio on cases that related to the context of the program, conferences, lectures and walking trips will form foundation of expanded course includes many intensive modules on theory, history, technology also French language and culture, which teach by leading French and European practitioners, historians, critics and theoreticians. In autumn semester, totalization studio is conducted it coordination with the Houston ones, however, with sharing of chief French technical consultants. In spring's semester, simultaneously, graduate students participate in the seminar of pre-thesis during advanced video-conferencing system with Houston set. Students will get sixteen credit hours, which equaling one smester at RSA in Houston.

Faculty of Rice raises the directive of some courses of these courses. Study journeys' number will organize with different time periods in each semester to experience/visit important architectural monuments in various France's cities, involving, Lyon and Bordeaux, also long journey outside of France, that determined through the mid-term rest to many countries, such as, Spain, Italy, Netherlands, Switzerland and Morocco.

Table 4.1: Courses program

Design	
Course code	**Courses**
Arch 101	Principles of Architecture I
Arch 102	Principles of Architecture I
Arch 201	Principles of Architecture II
Arch 202	Principles of Architecture II
Arch 301	Principles of Architecture III
Arch 302	Principles of Architecture III
Arch 401	Principles of Architecture IV
Arch 402	Principles of Architecture IV
Technology	
Arch 207	Technology I - TheFrame
Arch 209	Technology II - The Shell
Arch 314	Technology III - TheEnvelope
Arch 316	Technology IV - The Environment
History&Theory	
Arch 225	History&Theory I (IntroductiontoArchitecturalthinking)

Arch 346	History&Theory III (Pre 1968)
Arch 352	History &Theory IV (1968-present)
Practice	
Arch 423	Professionalism& Management in Architectural Practice
***Arch 500	Preceptorship Program

2. University of southern California, USC - School of Architecture. The USC School of Architecture offers many of study abroad chances, that have made to coincide with the particular architecture curriculum. Which coincide with school's program as follows, a group of various international programs are offering each year to architecture students at their fourth-year through their studio semesters. One or two travel programs are given every semester, (autumn, spring and summer), with new places, such as, France, Spain, China and Italy. Which makes students are being at good academic standing.

Also, USC, Offering schange periodically from semester-long, undergraduate study abroad programs to graduate level overseas workshops. Architecture students have other opportunities involving Fellowships by Architectural Guild, humanitarian and opportunities of research traveling by architecture-affiliated student organizations, also,international and domestic internships.